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The influence of mood on self-defining memories

being a dissertation in partial fulfilment of the requirements for the degree of Doctor of Clinical Psychology in the University of Hull

by

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Overview

The portfolio has three parts. Part one is a systematic literature review, in which the empirical literature relating to self-defining memories is reviewed. The term 'self-defining memories' which was first coined by Singer and Moffitt (1991-1992), refers to a subcategory of autobiographical memories that are of important events in our personal histories that we believe define who we are (Singer, 2005). The systematic literature review presented in this portfolio examines which factors may affect the recollection of SDMs recall in terms of the types of memories recalled, but also the experience of recalling such poignant memories.

Part two is an empirical paper, which explores the how changes in mood may affect the recollection of self-defining memories. This investigation uses laboratory induced changes in mood to examine how mood variation may affect the thematic content, and affective response to SDMs in a group of individuals with bipolar disorder, and non-clinical controls. The findings suggested partial support for the hypotheses that mood does influence the type of SDMs recalled, affective responses to memories, and perception of positive self when thinking of the memories. However, contrary to predictions, the effect of mood was not found to differ between individuals with bipolar disorder and non-clinical controls. Interestingly, this study found that individuals with bipolar disorder recalled memories that contained themes of a disrupted sense of identity, or acting out of character, when by their nature, SDMs are meant to reflect events that an individual feels defines who they are rather than who they are not.

Part three comprises the appendices. This part contains additional information relating to the literature review and empirical paper, including information about ethical approval.

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PART ONE:

Systematic Literature Review

Factors Affecting the Recollection of Self-defining Memories: A Systematic Review of the Literature

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Please see Appendix 2 for the Guideline for Authors.

Factors Affecting the Recollection of Self-defining Memories: A Systematic Review of the Literature

Abstract

The past decade has seen an increase in the empirical research examining self-defining memories (SDMs), a subcategory of autobiographical memory that refers to important and specific events from our lives that we believe help us to define who we are (Singer, 2005). A systematic literature review was conducted to identify individual factors that affect recall of SDMs as this has not been done to date. Twenty papers were suitable for inclusion in the review. Factors that have been explored include personality constructs, clinical diagnoses, age, gender, and culture. The findings suggested that individual factors do affect recollection of different aspects of SDMs. Limitations of the literature and future directions for research are discussed and clinical implications are considered.

Keywords: Autobiographical memory, Self-defining memories, Self-memory model, Systematic Literature Review

1. Introduction

The notion that our personalities are inherently linked to our memories is by no means a new concept: Adler (1931) proposed that personal memories were paramount in the understanding of personality as they represent our personal goals, allow us to draw on previous experiences and reflect upon what he called the *"story of my life"* (pg 73-74). However, it is only over the past few decades that there has been a resurgence of research examining the relationship between memory and self (e.g. Conway & Pledyll-Pearce, 2000; Singer & Salovey, 1993). Beike, Lampinen and Behrend, (2004) suggest that this rekindled interest may have, in part, arisen from observations that the primary focus of preceding literature regarding memory had been on laboratory research with the field of personal memories being largely neglected (Neisser, 1982; Tulving, 1983). Furthermore, in the field of personality psychology, explorations of the centrality of life stories in identity development emerged (McAdams, 1995, 1996).The reciprocal nature of the relationship between self and memory has been prominent in the contemporary literature linking personality, identity, and memory (Conway & Pledyll-Pearce, 2000; Conway, Singer & Tagini, 2004).

Conway and Pledyll-Pearce's (2000) seminal paper presents 'The Self-Memory System model' (SMS). This proposes that there are two components to self-memory: firstly, the autobiographical knowledge base which is organized hierarchically containing knowledge of lifetime periods, general events (such as events that were regular occurrences or memories of events extending over a brief period of time) and event-specific knowledge. The model postulates that the memories that are recalled are influenced by the second component of the SMS, a system of working-self which Conway and Pledyll-Pearce (2000) suggest to be a subsystem of working memory (Baddeley, 1986). This system is described to function to constrain thoughts and behaviour in order to obtain personal goals, meaning that current goals will activate particular memories that are consistent with these goals. However, the relationship

is not one-way; the symbiotic relationship between goals and memory means that just as current goals constrain the memories we recall, our previous experiences will shape our personal strivings.

Self-defining memories (SDMs) are a subcategory of autobiographical memories that are particularly important to the premise that memories, identity, and sense of self are linked as they refer to important and specific events in our personal histories that we believe help us to define who we are (Singer, 2005). The term 'self-defining memory' was coined by Singer and Moffitt (1991-1992), who developed the initial written self-defining memory task which has been further refined by Singer and his colleagues in subsequent studies (e.g. Blagov & Singer, 2004), and also adapted into other formats, such as interviews, by other researchers (e.g. McLean, 2008; McLean & Fournier, 2008). Singer & Salovey (1993) describe SDMs as being *"vivid, affectively charged, repetitive, linked to other similar memories, and related to an important unresolved theme or enduring concern in an individual's life"* (p. 13). Various aspects of self-defining memories have been investigated including affective response when recalling the memory, specificity, content (type of event in the memory), and integrative meaning which relates to the level of meaning that individuals have ascribed to the event in the memory such as statements about what the memory has taught the individual about him or herself, others, or the world (Singer, Rexhaj & Baddeley, 2007). The processes of autobiographical reasoning are another aspect of SDMs that have been studied, these papers argue that it is through the processes of autobiographical reasoning that connections are made between the self and memories of past events, and that these connections can be regarded as a crucial part of constructing one's life story (McLean, 2008; McLean & Fournier, 2008).

Previous research has looked at how autobiographical memories are affected by different factors. For example, Bower (1981) describes the phenomenon of mood dependency and mood congruency on recalling memories: an overgeneral memory bias has been found in individuals experiencing depression (Williams et al, 2007). Also, people that were rated as

having a firm commitment to identity and a stable system of beliefs have been found to be able to recall more personal memories faster than individuals that were found to be lacking a stable identity (Neimeyer & Rareside, 1991). If these aforementioned factors affect autobiographical memory it could be suggested that they may also influence the recollection of self-defining memories. Bearing in mind the premise that SDMs are inextricably linked to our sense of self the question is raised of how some individual differences or changes in mood could alter how we recall memories and in turn affect our sense of identity.

Following the lead of Singer and his colleagues (Singer & Salovey, 1993; Moffitt & Singer, 1994; Moffitt, Singer, Nelligan, Carlson & Vyse, 1994; Blagov & Singer, 2004; Singer, Rexhaj & Baddeley, 2007), a number of other researchers have also adopted the approach of examining SDMs to explore the relationship between self and autobiographical memories (e.g. McLean, 2005, 2008; McLean & Fournier, 2008; Sutin &Robins, 2005, 2008). In recent years a number of studies have paid attention to looking at individual factors such as personality, mood, or psychiatric illness and the impact these factors have on the SDMs but, to the author's knowledge, there is yet to be a paper that pulls together these studies. A systematic literature review was conducted to identify the individual factors that influence different facets of SDMs. Following the presentation of the findings, major themes, limitations and future directions for research will be discussed. This area of research is likely to have theoretical and clinical implications: whichever model of psychotherapy is employed, all would arguably share the view that the capacity to learn from experience and integrate experiences is a goal of therapy and that our personal memories, narratives or stories about the self are fundamental for constructing a sense of identity and making self-changes (Angus & McLeod, 2004; Singer, Baddeley & Frantsve, 2008). Clinical and theoretical implications of this body of research will be considered in the discussion.

2. Method

A systematic review of the literature was conducted to obtain a comprehensive and unbiased collection of research articles that study self-defining memories.

2.1. Search Strategy

Preliminary searches were undertaken using the term [AUTOBIOGRAPHICAL MEMOR*] with [IDENTITY] in order to ascertain the range of literature that was available which looks at the association between autobiographical memory and identity. This initial search yielded 174 articles. After a review of the titles and abstracts from this initial search, the search terms were refined to [SELF-DEFINING MEMOR*]. Because this review was interested specifically in 'self-defining memories' rather than more general autobiographical memories, it was not considered appropriate to use any wider search terms to select the papers for the review. Electronic databases accessed were PsychInfo, PsychARTICLES, and Medline (all accessed in May 2009). Further searches were conducted by reviewing the references of studies that were acquired through searching the electronic databases. Expert researchers, including Professor Jefferson Singer, were contacted for advice regarding any additional articles.

2.2. Study selection

In order for a study to be selected for the review it was required to meet the following inclusion criteria: (1) self-defining memories were elicited and analysed as part of the main investigation (2) at least one aspect of SDM recollection (such as the type of memory e.g. content or specificity, or the experience of recall e.g. affective response) was examined in relation to a second factor (e.g. individual differences or performance on another task) rather than solely looking at associations between different aspects of SDM recollection (3) published in a peer review journal (4) meets a minimum threshold of research quality including an account of the theoretical and empirical background to the study; clearly stated research aims, questions

and/ or hypotheses that follow from the theoretical background; a clear description of the sample and use of an appropriate screening measure if a clinical population took part; a clear description of the methodology, and the use of appropriate statistical procedures to analyse the data. Review articles and studies not published in English were excluded. Figure 1 illustrates the article selection process for this review.

Insert Figure 1 about here

Excluded Articles

Of the initial 28 articles yielded from the searches one was excluded due to being not being written in English ; three articles were excluded as they were reviews, chapters or commentaries (Conway, Martin & Tagini, 2004; Gaydos, 2005; Singer, 1998); a further two articles were excluded that used the self-defining memory paradigm to look specifically at particular areas of identity development including ethnicity (Syed & Azmitia, 2008), and sexuality (Morgan & Thompson, 2007), rather than as an exploration of SDMs. Another study was excluded because it examined extraversion in relation to the process of sharing memories rather than the type of memory recalled, or the experience of SDM recollection which is the focus of this review (McLean & Pasupathi, 2006). Finally, one article was excluded as SDMs were collected alongside general autobiographical memories and these were not differentiated between for the statistical analyses (Kuyken & Howell, 2006).

2.3. Quality Assessment

The quality of the included studies was assessed by two independent raters using a checklist that was originally developed by Downs and Black (1998) which was adapted for the purpose of this review (Appendix 4). The adapted scale had 21 items which assess information reported in the studies, internal and external validity, and the power of studies. Quality assessment ratings for each study can be seen in Table 1. The discussion section of this paper will consider the issues highlighted by the checklist.

3. Results

Twenty papers met the inclusion criteria and most papers examined several facets of SDMs. Furthermore, the papers considered a variety of factors that may be associated with the recollection of SDMs including personal strivings, personality factors, psychiatric disorders, culture, age, gender, and sharing memories with others. Findings have been grouped according to the different aspects of SDMs investigated. An overview of each paper is presented in Table 1.

Insert table 1 about here

3.1. Specificity

Memories can be specific, referring to a precise moment or event, or they may be summaries, describing similar events that have merged into a combined memory, or a series of connected events that may have taken place over an extended period of time (Singer et al, 2007). This review identified four papers that examined factors that affect SDM specificity (Blagov & Singer, 2004; Moffitt et al, 1994; Raffard et al, 2009; Singer et al, 2007).

Moffitt et al., (1994) examined depression in a non-clinical sample of undergraduate students (a median split was used to divide into lower and higher depression scores using the Multiple Affect Adjective Checklist-Revised, MAACL-R: Zuckerman & Lubin, 1985). Participants were required to either think of a positive or negative SDM: those with higher depression scores were found to recall significantly more summary memories, and less single event memories in the positive SDM request condition than participants with lower depression scores. No significant differences were found in the number of summary and single-event memories between participants with higher and lower depression scores that were asked to provide negative SDMs. More recently, another study has examined SDMs in relation to

schizophrenia: Raffard et al., (2009) found no differences between a group of participants with a diagnosis of schizophrenia and non-clinical controls in terms of the number of specific versus summary memories recalled. This was contrary to predictions made that were based on previous findings of an overgeneral memory bias in schizophrenia for the recollection of autobiographical memories (Cuervo-Lombard et al., 2007).

Blagov and Singer (2005) studied the relationship between SDMs and personality adjustment which was measured using the short version of the Weinberger Adjustment Inventory (WAI-SF: Weinberger, 1997, 1998). Specificity was explored in relation to the dimensions of Repressive Defensiveness and Subjective Expression of Distress. Consistent with predictions, it was found that participants scoring highly on the scale of Repressive Defensiveness recalled fewer specific SDMs. However, contrary to the hypothesis, Distress was not found to correlate with memory specificity.

Age is another factor that has been found to affect the specificity of SDMs. Singer et al., (2007) compared the SDMs of adults aged 50 years and over, to the SDMs of college students. In line with the hypotheses, it was found that the college students recalled significantly more specific memories than the older participants who appeared to recall more summarised SDMs.

In summary, to date, the factors of age, personality adjustment, and mood have been found to be associated with the number of specific versus summary memories recalled.

3.2. Content

Twelve papers examined individual factors in relation to what can broadly be termed the content of SDMs (Blagov & Singer, 2004; Jobson & O'Kearney, 2006; Jobson & O'Kearney, 2008[a]; Jobson & O'Kearney, 2008[b]; McLean & Thorne, 2003; Singer et al, 2007; Sutherland & Bryant, 2005; Sutin, 2008; Sutin & Robins, 2005, 2008; Thorne & McLean, 2002; Wood & Conway, 2006). A number of studies have adopted a method of scoring for memory narratives based on a classification system developed by Thorne and McLean (2001) consisting

of 9 broad categories including: life-threatening events, exploration/recreation, disrupted relationships, achievement, guilt/shame, substance use, and events that are unclassifiable (not clearly belonging to just one of the aforementioned categories). Of course, some studies made alterations to this classification system to address their specific research aims such as incorporating additional themes. For example, Raffard et al., (2009) added themes that may be more relevant to a population with schizophrenia, and other studies developed their own content coding schemes often to identify the presence or absence of a particular theme pertinent to the research question (e.g. Jobson & O'Kearney, 2006; Jobson & O'Kearney, 2008[a]; Jobson & O'Kearney, 2008[b]; Maccallum & Bryant, 2008; Sutherland & Bryant, 2005). Two studies examined the content of SDMs in terms of their motivational content (Sutin & Robins, 2005; Sutin & Robins, 2008).

Individual differences of age (Singer et al, 2007) and gender (McLean & Thorne, 2003; Thorne & McLean, 2002; Wood & Conway, 2006) have been examined in relation to SDM content or theme. With regards to age, Singer et al (2007) compared the content of SDMs between adults over 50 and college students and no significant differences were found between the two groups. Another study that considered the relationship between age and the theme of SDMs was that of McLean (2008). As this study did not code memories for types of content but rather examined whether there was thematic coherence throughout an interview version of the SDM task, it is difficult to draw comparisons with Singer (2007).

With regards to gender, Thorne and McLean, (2002) examined gender differences in the emotional construction of SDMs about life threatening events. This paper comprised of two studies, the first of which used a sample of undergraduate students and looked at the prevalence of different themes in SDMs. No significant differences were found between male and female participants. The sample of the second study consisted of participants from the first study who had reported at least one life-threatening event as a self-defining memory. There was an effect of gender on the type of life-threatening event reported in the SDM: women recalled more

events about death, whereas men recalled more SDMs concerning accidents. There were no significant gender differences between the number of life-threatening SDMs concerning physical assault, though women were more likely to report assaults involving rape or sexual abuse. Narratives that reflected an emotional position of toughness, with a focus on self-survival, were significantly more prevalent for men than women, whereas compassionate narratives (care or concern for others) were significantly more prevalent for women than men. Narratives emphasising one's own feelings of vulnerability were equally prevalent for men and women. Finally, whereas event type did not seem to be associated with the emotional position of SDMs for men, for the female participants, it was found that emotional positions taken in the narratives were conditional on the type of event reported, with tough positions relating more to memories about physical assault and compassion positions being more characteristic for women's memories about death. Whereas the previous study, conducted by Thorne and McLean (2002), did not find a gender difference in the content of general SDMs, Wood and Conway (2006) found that overall women reported more negative events than men and that this difference was more pronounced in the higher frequency categories of memories of negative events (interpersonal conflict, death and disappointment in self). Additionally, McLean & Thorne (2003) found that for SDMs of relationships in adolescents, females reported more memories with themes of closeness than males. However, in terms of the themes of separation and conflict, no gender differences were observed.

A number of studies have examined the content of SDMs in clinical populations, including schizophrenia (Raffard et al., 2009), complicated grief (Maccallum & Bryant, 2008), and post-traumatic stress (PTSD: Jobson & O'Kearney[b], 2008; Sutherland & Bryant, 2005). Raffard et al, (2009) found participants with schizophrenia produced fewer memories characterised by Achievement content and more memories characterised by Hospitalisation/stigmatisation than the control group. However, no differences were found between the clinical and non-clinical participants for the presence of the following themes: life-threatening, exploration/recreation, disrupted relationships, guilt/ shame, and failure. Another

diagnosis that has been examined in relation to SDMs is complicated grief (Maccallum & Bryant, 2008). This study compared the SDMs of people meeting diagnostic criteria for complicated grief with a group of bereaved individuals without complicated grief (screened for using Complicated Greif Assessment, Zhang, El-Jawahri & Prigerson, 2006). It was found that SDMs involving the deceased were recalled more by participants with complicated grief than those without. Equal numbers of participants in each group recalled their loved one's death as a SDM.

The content of SDMs has repeatedly been found to be influenced by the experience of trauma and PTSD (Jobson & O'Kearney, 2006; Jobson & O'Kearney, 2008[b]; Sutherland and Bryant, 2005). In accordance with the Self-Memory Model, it was hypothesised by Sutherland and Bryant (2005) that negative or trauma-related memories and associated personal goals (such as *'I want to get over the pain'*) would be more prevalent in people with PTSD. This hypothesis was tested using the SDM task and asking participants to state their personal strivings by listing 15 goals it was important for them to achieve at the time (based on Emmon's, 1986, 1989). Findings were compared across three groups: PTSD, trauma-exposed but no PTSD and non-trauma-exposed controls. Consistent with their hypotheses, Sutherland and Bryant (2005) found that participants with PTSD reported more negative SDMs and memories that were trauma-related when compared to the non PTSD group and controls. It was also found that the retrieval of trauma related memories was strongly associated with trauma related goals.

Jobson and O'Kearney (2008[b]) also found that trauma survivors with PTSD compared to those without PTSD retrieved significantly more SDMs that were trauma-themed. Likewise, other measures of self-concept, including goals (Emmons, 1986) and self-cognitions (Twenty-Statements Test: Kuhn & McPartland, 1954), were also trauma related. However, this study observed that this relationship between PTSD and self-concept was mediated by culture, only being apparent in participants from an independent culture (Australian). No significant differences in trauma-related goals, SDMs and self-cognitions were found between participants with and without PTSD who were from an interdependent culture (Asian). Similarly, another

study exploring SDMs and trauma (Jobson & O'Kearney, 2006) found a cultural difference for the relationship between disrupted adjustment to the reported traumatic autobiographical memory and number of trauma-themed SDMs reported. For the Australian participants, disrupted adjustment to trauma (measured using Impact of Event Scale- Revised; IES-R: Weiss & Marmar, 1997) was found to relate to more SDMs focused on trauma; a relationship not replicated in the group of Asian participants. These findings appear to indicate that individuals from independent cultures that experience trauma may be more likely to incorporate the traumatic event into their sense of self which has been reflected in their SDMs and self-cognitions. It should be noted that Jobson and O'Kearney's (2006) study was conducted using university students rather than a clinical sample; participants were selected from independent (Australia) and interdependent (Asia) cultures and were asked to provide 5 SDMs in addition to an autobiographical memory about a "significant, emotionally, traumatic event" and an everyday event. Analysis of the SDMs collected in this study revealed there was no significant difference between cultures in terms of the ratio of trauma-themed SDMs in a population of students.

Further to the research that has examined how culture mediates how traumatic experiences influence SDMs, culture has also been found to influence the thematic content of SDMs more generally (Jobson & O'Kearney, 2008[a]). Comparing a sample of undergraduates from independent or interdependent cultures (Australia and Asia respectively), it was found that in comparison to the Asian students, the Australian students recalled significantly more SDMs with an autonomous theme, and scored more highly on autonomous orientation (sum of references to autonomy in SDMs). Conversely, the Asian students recalled significantly more SDMs with a relatedness theme (social events or collective activities) and scored significantly higher than their Australian counterparts on measures of social interaction in the SDMs.

Previously discussed studies found relationships between goals, strivings and content of SDMs (Jobson & O'Kearney, 2008[b]; Sutherland & Bryant, 2005). Another study that found a relationship between personal strivings and the content of SDMs was conducted by Sutin and

Robins, (2008). This study explored the content of SDMs in terms of motivational content across the dimensions of power, achievement and intimacy. In this study personal strivings were obtained using sentence stems that participants had to complete (starting, "*I typically try to...*") and then rated on 10 dimensions taken from Emmons (1999) which were subsequently reduced to three factors: commitment to strivings, progress made towards this striving and conflict (amongst strivings, or 'striving' imposed upon them). Sutin and Robins (2008) found a significant correlation between the motivational content of SDMs and personal strivings: more perceived conflict among strivings tended to occur for participants that reported higher levels of power motivation in their memories; these individuals also appeared to have more self-defeating strivings. Sutin and Robins (2008) found that participants reporting achievement motivated SDMs were more likely to report commitment to personal strivings and tended to have more adaptive, and fewer self-defeating, strivings. Intimacy motivated content of SDMs was correlated with both a commitment to strivings but also conflict amongst strivings. Sutin and Robins (2008) found that the content of SDMs partially mediated the relationship between personality variables and personal strivings: more narcissistic individuals (measured using the Narcissistic Personality Inventory: NPI, Raskin & Terry, 1988) were more committed to their strivings because they experienced more positive affect across memories, but experienced more conflict amongst strivings due to the power-related content of memories. Memory content was not found to mediate the relationship between personal strivings and self-esteem (measured using the Rosenberg Self-Esteem Scale: RSE, Rosenberg, 1965). A second study by Sutin & Robins (2008) extended the aforementioned findings to a longitudinal context: emotional and motivational content of memories were found to be relatively stable over a ten week period.

In addition to the aforementioned findings, other studies have previously found particular personality variables to be associated with motivational content of SDMs (Sutin, 2008; Sutin & Robins, 2005). Sutin (2008) found that high conscientiousness scores (measured using the Conscientiousness scale of the Big Five Inventory: BFI, John & Srivastava, 1999) were associated with increased achievement motivation in SDMs. Sutin and Robins (2005)

found there was an association between SDMs and the constructs of both self-esteem (RSE: Rosenberg, 1965) and narcissism (NPI: Raskin &Terry, 1988), and proneness to feelings of shame, guilt, and pride measured using the Test of Self-conscious Awareness (TOSCA: Tangney et al, 2000). Motivational content of SDMs was also explored in this paper in relation to personality variables. It was found that individuals scoring more highly on the dimension of narcissism reported more memories containing power motives. Individuals prone to feelings of guilt were found to recall less SDMs with power motivation, whereas proneness to shame and pride, and the construct of self-esteem were not related to power motivation. Individuals with high self-esteem reported more achievement motivation in their positive academic SDMs, whereas narcissistic individuals reported more in their negative romantic SDMs. Achievement motivation was found to be unrelated to proneness to guilt or shame but correlated positively with proneness to feelings of pride in positive academic memories. The third motive was intimacy, overall this was not found to be associated with self-esteem, narcissism, or any items measured by the TOSCA. The finding that achievement motivation was associated with higher self-esteem and wellbeing was extended across a four-year period in the longitudinal component to this study. Additionally, over time, an increase in agreeableness and conscientiousness, and a decrease in neuroticism were found to be related to achievement motivation in memories. Memories with power motivation were found to be associated with increases in neuroticism and decreases in well-being.

Another study that found that the content of SDMs was related to personality constructs was conducted by Blagov and Singer (2004). This study found that participants scoring more highly on the dimension of 'Subjective Expression of Distress' (WAI-SF: Weinberger, 1997, 1998) were found to report more themes of disrupted relationships and threat in their SDMs. An inverse relationship between distress and SDMs with achievement content was also found.

In short, this review has identified a number of factors that may be associated with the thematic content of SDMs including age, gender, culture, personality, psychiatric diagnoses,

and traumatic experiences. However, a degree of caution is required as each of these factors has only been examined by a limited number of studies, and not all findings were in agreement. It should also be noted that the relationship with trauma to some extent appears to be mediated by the association between culture and SDMs.

3.3. Affective Response

Ten papers have examined which factors are associated with the affective response that an individual has to their SDMs (Blagov & Singer, 2004; Maccallum & Bryant, 2008; Moffitt & Singer, 1994; Moffitt et al, 1994; Raffard et al, 2009; Singer et al, 2007; Sutin, 2008; Sutin & Robins, 2005; Sutin & Robins, 2008; Wood & Conway, 2006).

One study has reported that age may be a factor related to one's affective response to SDMs (Singer et al., 2007). Consistent with their predictions, it was found that older adults reported memories that overall were more positive and less negative than the memories reported by the younger sample. The age differences reported remained following further analyses controlling for subjective wellbeing indicating that there is an effect of age on the recollection of SDMs independent of current mood. Affect was examined using the SDM rating sheet (Blagov & Singer, 2004), which comprises of 12 emotions on a scale of 0 (not at all) to 6 (extremely).

Gender differences have been observed with regards to emotions reported for both positive and negative SDMs, in comparison to men, women were found to report more negative emotions for SDMs of negative events, and more positive emotions for SDMs of positive events (Wood & Conway, 2006).

Two studies observed the relationship between participants' affective response to SDMs and their personal strivings (Moffitt & Singer, 1994; Sutin & Robins, 2008). Both studies used Emmon's (1986) sentence stem task to obtain strivings. To measure affective response, Moffitt & Singer (1994) requested participants to rate ten primary emotions (from Izzard, 1977) which

were found to form two factors (positive and negative affect), whereas Sutin and Robins (2008) asked participants to rate adjectives taken from the Positive and Negative Affect Schedule (PANAS: Watson, Clark & Telligen, 1988).

Moffitt and Singer (1994) observed that participants recalling more memories relevant to the attainment of their strivings had significantly more positive affect (PA) and less negative affect (NA) in response to their SDMs. Both studies found that NA in SDMs was significantly correlated with perceived difficulty in attaining one's strivings, whereas an increased perceived likelihood in attaining goals or having already made progress towards attaining goals was related to increased levels of PA in SDMs. These individuals were also more likely to be more committed to their strivings (Sutin & Robins, 2008). Sutin and Robins (2008) found that PA responses to SDMs were generally found to be associated with more adaptive personal strivings (more approach strivings and less self-defeating strivings e.g. '*strivings that reflect a lack of growth*' pg 642), whereas NA was related to a lower number of approach strivings. Similarly, Moffitt and Singer (1994) observed that individuals generating more avoidance strivings (e.g. to avoid pain or danger) expressed significantly less PA in response to SDMs recalled, which tended to be more related to the non-attainment of their strivings. There was also a trend for these participants to express more NA in response to SDMs in comparison to the participants who generated a lower percentage of avoidance strivings; however, this result was not significant. Sutin and Robins (2008) extended their aforementioned findings to a longitudinal context and it was found that emotional content of memories was relatively stable over a ten week period. Commitment to personal strivings was found to be associated with increases in reported PA and NA for SDMs over time which the authors suggest could indicate that individuals are more ego-involved in their strivings. Conflict amongst personal strivings was found to be associated with more NA in memories over time.

Personality factors have been examined in relation to affective responses to SDMs (Blagov & Singer, 2004; Sutin, 2008; Sutin & Robins, 2005). Blagov and Singer (2004) found

that self-reported affective responses to memories were unrelated to self-restraint or repressive defensiveness. However, a relationship was present between distress and affective response: there was a significant positive correlation between distress and negative affect, and a negative correlation with positive affect (though the latter association did not reach statistical significance). Another study conducted by Sutin and Robins (2005) found an association between SDMs and the constructs of both self-esteem (RSE: Rosenberg, 1965), narcissism (NPI: Raskin &Terry, 1988), and proneness to shame, guilt, and pride (measured using the TOSCA; Tangney et al, 2000). Individuals with high self-esteem reported more PA and less NA in their memories. Participants with higher narcissism scores also appeared to report more PA, however, they did not report less NA in response to SDMs unlike those with high self-esteem. This study also revealed that participants prone to feelings of shame were more likely to report NA in relation to their memories. Participants who were guilt-prone were more likely to display NA in their negative academic memories and participants prone to feelings of pride were found to report more PA across all reported memories. The second study conducted by Sutin and Robins (2005) aimed to extend the findings from the first over a four-year time period throughout college. Generally, affect and motives of SDMs were found to be moderately stable over time. In addition to the measures of self-esteem and narcissism used in Study 1, the second study also examined the personality constructs of extraversion, conscientiousness, agreeableness and neuroticism (Neo Five-Factor Inventory; NEO-FFI: Costa & McCrae, 1992), wellbeing and academic achievement. It was found that participants reporting more PA tended to have higher levels of self-esteem and well-being, but also tended to increase in self-esteem, conscientiousness, and agreeableness over time. The expression of NA in memories was related to lower levels of self-esteem and well-being but was not associated with a change over time; NA was also found to be associated with a decrease in extraversion and increase in neuroticism.

Sutin (2008) also investigated SDMs in relation to the constructs of neuroticism and conscientiousness (measured using BFI; John & Srivastava, 1999). This study found that participants with higher neuroticism scores were found to report more NA and rate SDMs as

more emotionally intense. Neuroticism was also found to positively correlate with somatic complaints, and negatively with life satisfaction. This study found that factors of the reported SDMs (negative affect and emotional intensity) appeared to mediate the relationship between neuroticism and subjective health (Life Satisfaction Scale: Campbell, Converse & Rodgers, 1976), findings which are similar to those of Sutin & Robins (2005). The second study by Sutin (2008) found that higher levels of conscientiousness were associated with memories with more PA. This study also found that the relationship between Conscientiousness and the depth of processing when studying (Study Skills Questionnaire; SSQ, Elliot, McGregor & Gable, 1999) appeared to be, in part, mediated by the degree of PA in SDMs which the authors postulate could be a motivational factor for individuals when learning.

Three studies have examined mental health difficulties or clinical diagnoses in relation to affective response (Maccallum, & Bryant, 2008; Raffard, et al, 2009; Moffitt et al., 1994). Firstly, participants with a diagnosis of complicated grief, when recalling SDMs about the death of a loved one, were found to experience an increased level of NA, but a similar degree of PA when compared to bereaved individuals without complicated grief (Maccallum & Bryant, 2005). Raffard et al., (2009) found no significant group differences between participants with schizophrenia and non-clinical controls when looking at changes in affect (measured using the PANAS) between baseline and following the recollection of SDM. Finally, higher levels of depression in undergraduates were not found to be associated with the affective response to SDMs compared to participants with lower levels of depression (Moffitt et al., 1994).

Overall, it appears that a number of factors including age, gender, personal goals, and some personality variables may be associated with the degree of positive and negative affect experienced when recalling SDMs. However, the research to date did not find depression or schizophrenia to affect the degree of PA and NA in relation to the recollection of SDMs.

3.4. Meaning and autobiographical processing

Ten studies have explored the level of meaning ascribed to SDMs in relation to another factor (Blagov & Singer, 2004; Maccullum & Bryant, 2008; McLean, 2005, 2008; McLean & Fournier, 2008; McLean & Thorne, 2003; Raffard et al., 2009; Singer et al, 2007; Thorne, McLean, & Lawrence, 2004; Wood & Conway, 2006). Singer et al., (2007) describes 'integrative meaning' as allowing *"individuals to integrate their memories into recognised and acceptable cultural patterns and prescriptions that help to consolidate and guide individual identity"* (pg. 888). Scoring manuals have been devised and used throughout the literature to code integrative and non-integrative SDMs (Singer & Blagov, 2000), and the presence of meaning in memory narratives (McLean & Thorne, 2001). Other studies have investigated meaning in SDMs via exploration of the content and processes of autobiographical reasoning (McLean, 2008; McLean & Fournier, 2008).

Most recently, using the scoring method devised by Singer & Blagov (2000), Raffard et al., (2009) found that in comparison to the control group, participants with a diagnosis of schizophrenia produced fewer SDMs with integrative meaning. Another clinical group that showed less meaning making, was participants with complicated grief who were found to show less evidence of benefit finding in SDMs about the death of a loved one in comparison to bereaved individuals without complicated grief (Maccallum & Bryant, 2008).

Two studies examined meaning or connections made in SDMs in relation to personality factors (Blagov & Singer, 2004; McLean & Fournier, 2008). Blagov and Singer (2004) used the classification system developed by Singer and Blagov (2000) to examine the relationship between the personality factor of Self-Restraint and meaning making in SDMs. The dimension of self-restraint (measured using WAI-SF: Weinberger, 1997, 1998) was found to predict integrative meaning; integrated SDMs were found to occur more frequently (though not significantly) in participants with moderate, rather than high or low, levels of self-restraint. Integrative meaning was also found to correlate with Repressive Defensiveness. However, when

this relationship controlled for other factors, it was found that whereas specificity and number of words were predictors of integrative meaning, there was not an independent relationship between integrative meaning and repressive defensiveness.

McLean & Fournier (2008) found that personality differences at the level of ego development and traits (measured using BFI: John & Srivastava, 1999) were related to the content and processes of autobiographical reasoning across four types of connections made in narratives linking the memory to self: self-connections which included dispositional connections (traits, stable behavioural characteristics); value-connections which focused on morality and beliefs; outlook-connections which refer to attitudes and perspectives about the world; and personal growth connections which refer to maturation, development of confidence or personal strength. Two processes of autobiographical reasoning were also explored in this paper: firstly cognitive effort which refers to the presence of reflection or processing the connection reported in the memory, and secondly, emotional evaluation of the connection made in the memory.

Firstly, McLean & Fournier (2008) found that ego development was associated with making connections in SDMS. More specifically, thematic coherence across connections made throughout the SDM interview was associated with higher levels of ego development (measured using the Washington University Sentence Completion Test: Hy & Loevinger, 1996). Secondly, for participants with lower levels of ego development, increasing levels of cognitive effort were related to a higher likelihood of personal growth connections being made. More cognitive effort was not found to be related to more connections being made for those with higher ego development; it was reported that connections occurred more frequently regardless in the SDMs of these individuals.

Secondly, McLean & Fournier, (2008) found that individuals scoring more highly on the trait of ‘agreeableness’, and more conscientious individuals, were also more likely to have a theme across the connections made in SDMs. Conscientiousness was also found to mediate the

relationship between levels of cognitive effort when recalling memories, and making connections between self and memory events. Additionally, 'openness to experience' was not related to presence of a theme across connections, but was found to be positively correlated with the degree of emotional evaluation of SDMs. Extraversion was only marginally correlated with the degree of emotional evaluation of SDMs, but was found to be associated with the number of values connections made. Finally, neuroticism was found to negatively correlate with the number of outlook connections made.

Three studies observed a relationship between age and meaning making in SDMs (McLean, 2008; McLean & Fournier, 2008; Singer et al, 2007). Firstly, following the Singer & Blagov (2000) classification system, Singer et al (2007) found an age difference for the integration of the SDMs that were reported with older adults' memories including more meaning-making statements than the memories of college students. It should be noted that the other two studies reporting an association between SDMs and age in this category (McLean, 2008; McLean & Fournier, 2008) used the same participants, and the same SDMs. The focus of McLean & Fournier's (2008) study was on the relationship between personality and autobiographical reasoning of SDMs with age comparisons as secondary analyses (age was controlled for in the main analyses). Alternatively, the emphasis of the McLean (2008) paper was to explore age differences thus this review will focus on this paper. McLean (2008) found no differences in the frequencies of self-event connections or levels of reflective processing between the two age groups. However, this study reported more connections explaining a perceived stability of self present in older adults compared to the younger sample, who reported more SDMs about change than the older participants.

Three studies examined gender differences in relation to the level of meaning, or connections made in SDMs (McLean, 2008; McLean & Thorne, 2003; Wood & Conway, 2006). The primary aim of McLean (2008) was to examine age differences in SDMs, however gender differences were also explored. In addition to the findings reported in the previous section,

McLean (2008) found that female participants were more reflective throughout the SDM interview, and were also more likely to report a theme. Gender differences were found in the number of explanatory connections observed for older adults but not younger adults with female participants found to make fewer explanatory connections than male participants. Likewise, gender differences were observed in older adults (but not younger adults) on the prevalence of change-connections in SDMs with women making more change-connections than men. Reasons for an effect of age on gender differences that were considered in this paper include differences in cohort beliefs about gender roles. Consistent with McLean (2008), which found no gender differences for connections made in SDM narratives in young adults, McLean and Thorne (2003) also found that for a group of adolescents, no gender differences in terms of lesson learning and gaining insight were apparent. In contrast, Wood and Conway, (2006) found that women were significantly more likely to report meaning making in their memories than men, although no gender differences were found for the subjective impact events reported in SDMs had on the individual which this study found to be an effective indicator of the presence of meaning making in memories.

Two studies examined the nature of sharing SDMs with others and whether this is associated with the degree of meaning ascribed to memories (McLean, 2005; Thorne et al., 2004). McLean (2005) found that memories shared with others for the purpose of self-explanation, rather than entertainment, were more likely to have been ascribed meaning both in terms of lessons learnt from the event in the memory and insight gained. Thorne et al., (2004) examined whether sharing SDMs and particular kinds of SDMs have an effect on the level of meaning ascribed to SDMs in terms of lessons learnt or insights gained that could be applied to the individuals' life. Contrary to predictions, no difference was found between SDMs that had been shared with others, or remained untold, in terms of the frequency of SDMs containing meaning. Furthermore, proportions of the type of meaning ascribed to memories (lessons learnt or insight) were similar regardless of whether memories had been shared or not. This study also found that SDMs that make reference to tension were more likely to have spontaneous

references to the meaning of the SDM to the individual. Likewise, McLean & Thorne (2003) found that SDMs about relationships containing themes of conflict were associated with meaning making.

Overall, it seems that age, gender, personality variables, psychiatric diagnoses, and SDM content, to some extent may be associated with the level and type of meanings that are ascribed to SDMs. However, it appears that whether SDMs are shared with others does not alter the presence of meaning in the SDM.

3.5. Time

Two papers examined factors affecting the temporal placing of SDMs (Raffard et al, 2009; Sutherland & Bryant, 2005) in relation to psychiatric diagnoses. Interestingly, Raffard et al., (2009) found that the peak of the reminiscence bump (period most SDMs recalled from) for participants with schizophrenia tended to be between the 15-19 year age period whereas in an age-matched healthy control group the peak was in the 20-24 year time period. Additionally, Sutherland and Bryant (2005) observed that participants with PTSD reported fewer memories from their childhood compared to trauma survivors without PTSD and control participants. Non-PTSD participants were also found to report significantly less childhood memories than the control group.

3.6. Distancing

Sutin (2008) appears to be the only study that has examined the dimension of distancing (meaning how much the individuals feel they have in common with the person in the memory), as measured by the Memory Experiences Questionnaire (Sutin & Robins, 2007). This study found that individuals with higher levels of neuroticism (BFI: John & Srivastava, 1999) rated themselves as more distant from their SDMs. In contrast, no relationship was found between extraversion and the distancing from SDMs.

3.7. Vividness and Importance

Only two studies were identified as having reported which factors influence how vivid and important SDMs are regarded as by the individuals recalling them (Singer et al., 2007; Sutin, 2008). Firstly, Singer et al., (2007) examined the effect of age on the dimensions of vividness and importance and observed that older adults reported SDMs as being more vivid and important than college students. Sutin (2008) found that, whereas, the personality construct of neuroticism was unrelated to vividness, participants with high levels of conscientiousness rated memories as more vivid.

4. Discussion

This review has explored the current literature in order to address the question of which factors affect the recollection of self-defining memories. The following discussion briefly summarises the overall findings in relation to this question, and subsequently considers the implications of these findings in relation to the Self-Memory System Model, theories of personality, and clinical practice. Finally, the strengths and limitations of the studies included will be discussed before considering the limitations of this review.

In response to the issue of which factors affect the recollection of SDMs, a number of individual factors have been highlighted in this review as being associated with SDMs in terms of their content, as well as the individuals' experiences of recalling these poignant memories. More specifically, this review has found that factors including personal strivings (Jobson & O'Kearney, 2008[b]; Moffitt & Singer, 1994; Sutin, 2008; Sutin & Robins, 2008), personality constructs (Blagov & Singer, 2004; McLean & Fournier, 2008; Sutin, 2008; Sutin & Robins, 2005, 2008), ego development (McLean

& Fournier, 2008), mood (Moffitt et al., 1994), clinical diagnoses (Jobson & O'Kearney, 2008; Maccullum & Bryant, 2008; Raffard et al, 2009; Sutherland & Bryant, 2005), culture (Jobson & O'Kearney, 2006, 2008[a], 2008[b]), age (McLean, 2008, McLean & Fournier, 2008; Singer et al, 2007), gender (McLean, 2008; McLean & Thorne, 2003; Thorne & McLean, 2002; Wood & Conway, 2006) and sharing memories (McLean, 2005; Thorne, McLean & Lawrence, 2004), are associated with the recollection of SDMs across a number of dimensions, the most commonly explored being content, affective response, and meaning ascribed to memories. However, caution must be applied when drawing conclusions as most of these findings are based upon only a small number studies. Findings reported in this review should be considered to offer some preliminary evidence to indicate which factors may affect the recollection of SDMs, and this that may provide a starting point to develop further studies to add to the empirical literature.

Several of the papers in this review provide further evidence to support the Self-Memory System and some directly relate their findings to this model (Jobson and O'Kearney, 2008[b]; Moffitt and Singer, 1994; Sutherland & Bryant, 2005; Sutin and Robins, 2008; Sutin, 2008). The Self-Memory Model postulates that the symbiotic relationship between our autobiographical memories and sense of self means that our current goals, to some extent, constrain the memories that we recall about our lives so that they are consistent with our current sense of self, but also that our autobiographical memories can influence our sense of identity. In the aforementioned papers it was found that the content of strivings was associated with SDM content. Particular examples include: strivings related to the avoidance of pain or trauma, which were found to be associated with trauma-themed SDMs in PTSD sufferers (Jobson & O'Kearney, 2008[b];

Sutherland & Bryant, 2005); and more goals related to achievement and mastery were found to be associated with SDMs containing higher levels of achievement motivation (Sutin, 2008). Conway et al., (2004) discuss the need for a sense of coherence with regards to 'self' and that the SMS serves to maintain this coherence by constraining memories and goals so that they are consistent with one another. This theory is interesting when considering the findings that suggest memories recalled that relate to attainment of strivings are associated with more positive, and less negative, feelings towards the memories (Moffitt & Singer, 1994). In this example a cohesive relationship between life experiences and goals is clear. Interestingly, Moffitt & Singer (1994) and Sutin & Robins (2008), both reported a relationship between perceived non-attainment of strivings and negative affect in SDMs. In terms of the SMS model, arguably, this lack of coherence between strivings and experience (or memories) may cause the individuals in question discomfort as is reflected by a negative affective response to SDMs.

In terms of theories of personality, the SDM literature is important because it adds to the growing body of research that suggests personality is not a fixed construct but rather a more dynamic process in which narratives about one's life are fundamental in the development of identity (McAdams, 2001). Three papers featured in this review suggest that SDMs appear to mediate the relationship between personality and goals, or behaviours (Sutin, 2008; Sutin & Robins, 2005, 2008). These studies postulate that personality factors may make certain types of memories more easily accessible, and that these then shape strivings, behaviour or perceptions. Sutin (2008) discusses how such findings add to the literature that explores personality as a dynamic process. However,

as highlighted by Sutin & Robins (2008) a degree of caution in interpreting such findings is required as the issue of causality has yet to be teased apart.

Implications for clinical practice

Research into SDMs has interesting implications for both the theory and practice of clinical psychology. Singer et al. (2008) describe a number of psychotherapies that view personal narratives as a central component to the therapeutic process including narrative therapy (White, 2000), core conflictual relationship work (from psychodynamic therapy: Book, 2004), and person-based psychotherapy, which explores self-defining narratives, analysis of traits and defensive styles (Singer, 2005).

However, it could be argued that whichever model of therapy is adopted, all will involve some element of reflecting upon and integrating life experiences. For example, in cognitive-behavioural therapy, SDMs can be construed as memories of the predisposing experiences that Beck (1976) suggests leads to the development of core beliefs about ourselves and the world. Indeed, it could be suggested that the therapeutic process of developing formulations with clients to foster a shared understanding is a way of assisting clients to develop integrative meanings for their important memories. McLean and Pasupathi (2006) discuss the importance of sharing narratives, a process that occurs in therapy, in terms of sharing memories leading to a reduction in associated negative feelings (Pasupathi, 2003).

Nonetheless, one study included in this review that examined meaning making in relation to sharing narratives did not find that sharing SDMs led to more meaning making (Thorne et al., 2004). However, this study did reveal that SDMs containing references to tension were more likely to have meaning ascribed to them. In relation to

the work of Taylor (1991), Thorne et al. (2004) discuss how it appears that it is these more distressing memories about ourselves and our lives that cause discomfort and thus require the development of integrative meaning in order for adaptation to occur. Moreover, Blagov and Singer (2004) discuss how meaning making in memories may be an important aspect of affect regulation, and how by integrating memories people are more able to cope with negative emotions. Furthermore, Thorne et al. (2004) did not explore the reasons why SDMs were shared which may have affected the degree of meaning making present in SDMs. Indeed, McLean (2005) reported that memories shared in order to explain oneself did make more references to integrative meaning than SDMs shared for the purpose of entertaining others. However, even so, sharing of very personal memories amongst a group of people can also be seen as a process by which one could obtain social support of validation and acceptance. Furthermore, it could be construed as part of belonging to a social group of shared values and interests. It is interesting to consider whether the sharing of important memories facilitates the process of ascribing meanings or creating a cohesive story as suggested in theories of collaborative narration, a term which refers to the idea that the past is talked about frequently with other people (McLean & Pasupathi, 2006; Rime, Mesquita, Phillipot & Boca, 1991).)

In the research looking at SDMs of older adults, Singer et al., (2007) draws attention to the importance of SDMs and life review therapy which has been successful for treating the older adults presenting with depression (Serrano, Latorre, Gatz & Montanes, 2004). When considering this older client group, it also raises the issue of the role of SDMs in the process of dementia and the potential consequences of losing one's ability to recall these self-defining moments.

From a theoretical perspective, the findings presented in this review that indicate culture mediates adjustment to trauma (Jobson & O'Kearney, 2006, 2008[b]) and the degree to which traumatic events may be integrated into self-concept (Jobson & O'Kearney, 2008[b]), have been considered to have implications for current models of PTSD (Ehlers & Clark, 2000). This cognitive model postulates that the way in which an individual processes a traumatic event can lead to a sense of feeling threatened even long after the trauma has passed, however this model does not explicitly account for cultural variations. Jobson & O'Kearney, (2006, 2008[b]) discuss this issue and the implications for treating trauma victims from different cultures and suggest that in interdependent cultures, cognitive reframing may benefit from a greater emphasis on how trauma impacts on the more public or collective aspects of self rather than focusing on individual schemas. Furthermore, although cultural considerations should routinely be incorporated into clinical practice, it should be considered whether theoretical models of other psychopathologies may also be affected and should be accordingly adapted.

Strengths and limitations of included studies

Although the research reported here was found to be of good quality there were a number of issues highlighted in the checklist. Firstly, none of the studies reported a power calculation. Secondly, several papers employed methodology that required SDMs to be coded for content, specificity or meaning, but did not report whether the rater was blind to participants' group status, or hypotheses (Jobson & O'Kearney, 2006; Maccullum & Bryant, 2008; Moffitt et al, 1994; Sutherland & Bryant, 2005; Sutin & Robins, 2008; Thorne & McLean, 2002; Thorne et al, 2004). This could be problematic because a rater not blind to participant group status or hypotheses may be more biased

in his response. However, a methodological strength apparent in several papers was the use of rater who was blind to the participant group (Blagov & Singer, 2004; Jobson & O'Kearney, 2008[a]; McLean, 2005; McLean & Fournier, 2008; McLean & Thorne, 2003; Moffitt et al, 1994; Raffard et al, 2009; Singer et al, 2007).

Most of the studies solely used an undergraduate population to explore various aspects of SDMs (Blagov & Singer, 2004; Jobson & O'Kearney, 200; Jobson & O'Kearny, 2008; McLean & Thorne, 2003; Moffitt & Singer, 1994; Moffitt et al, 1994; Sutin, 2008; Sutin & Robins, 2005; Sutin & Robins, 2008,; Thorne & McLean, 2002; Thorne et al, 2004; Wood & Conway, 2006). It is questionable how these findings can be generalised to the wider population. Firstly, being younger, many of the undergraduates may have had fewer experiences such as births, deaths, and relationships than older people, events that may be regarded as self-defining. Secondly, the experience of university in itself may provide a common theme that is not present in the wider population. It would be interesting to replicate some of these studies but with a sample more representative of the general population. Another consideration regarding the aforementioned studies using undergraduates is that they report using predominately female participants (Blagov & Singer, 2004; Maccallum & Bryant, 2008; McLean & Thorne, 2003; Singer et al, 2007; Sutin, 2008; Sutin & Robins, 2005, 2008). Again, these findings may not be easily generalised, particularly in light of findings presented in this review indicating that there are gender differences in SDMs (Wood & Conway, 2006). Four studies did not report controlling for confounding variables such as age or sex (Moffitt et al., 1994; Moffitt & Singer, 1994; Sutin, 2008; Raffard et al., 2009).

Another consideration for any research exploring self-definition and personal memories regards the distinction between what a person truly regards as self-defining and what participants feel able to disclose. Jobson and O'Kearney (2008[b]) highlight this issue in relation to completing measures of self-concept and indicate that allowing participants to complete measures at home may have led to culturally desirable responses. However, more generally, the SDM task could yield findings confounded by social desirability, this may be a particular issue for studies reporting their participants were taking part in exchange for course credit.

Potentially, a limitation of studies investigating the content of SDMs (e.g. Blagov & Singer, 2004; Raffard et al, 2009) was the use of a scoring system (Thorne & McLean, 2001) that looked for the presence or absence of a theme. It is possible that many SDMs clearly highlight a number of themes, and it may be difficult to 'pick' which one is the most prominent, and that to subsequently categorize these memories as non-classifiable loses a wealth of information that is present in SDMs. An alternative approach that may be worth exploring would be the development of a rating system which can code SDMs for the presence of multiple themes. A further limitation regards the breadth of scoring categories. For example, in the category of 'life-threatening events', despite being very different events, memories about accidents or serious illness, would be categorised alongside experiences of abuse, rape or violence at the hands of another person. This is highlighted in Thorne & McLean's (2002) paper exploring SDMs classed as 'life-threatening events' in more detail which found significant gender differences both in regards to the type of event and the emotional position participants held in the memory reported.

Also, despite many studies using the same SDM task, subtle variations in instructions are likely to affect the findings (Singer & Moffitt, 1991-1992). The implication of this is that it makes it more difficult to generalise and interpret findings collectively. Raffard et al., (2009) reflect upon how the decision to not ask for 'specific' SDMs meant that they were assessing the tendency for specific SDMs to be recalled spontaneously, rather than looking at the participant's ability to recall specific memories. Raffard et al., (2009) discuss how this may explain that, contrary to predictions, a significant difference between the number of specific memories recalled by people with schizophrenia and a control group was not found.

Limitations of this review and future directions

This review was very specific with regard to the terms that were searched. It is possible that other research also looked at autobiographical memories pertinent to self-definition but did not use the SDM task, or draw upon the SDM literature, therefore the use of the search term of 'self-defining memory' may have compromised sensitivity in order to ensure specificity. This is likely to be particularly true for any articles exploring personal memories and self that preceded Moffitt and Singer's (1991-1992) study where the term 'self-defining memories' initially appeared. However, conceptually, it is important that the search was as narrow as it was because the focus was on the 'self-defining memories' literature, and the expansion into the wider field of autobiographical memories .

Another limitation of this review relates to the heterogeneity of the literature. There were not many papers in any given area, for example personality and SDMs, or gender and SDMs, thus despite a range of interesting findings being presented it is more difficult to compare the results. In the future, following further research in the area, it

might be interesting to conduct a review looking more specifically at a particular individual factor that affects SDMs.

In terms of future directions of research in this area, a number of suggestions have been highlighted throughout the discussion, including the replication of studies with a more representative sample. Another interesting direction for future research could be to examine how SDMs change over time, building upon the findings that age affects aspects of SDM recollection (McLean & Fournier, 2008; Singer et al., 2007) and the longitudinal elements of other studies (Sutin & Robins, 2005, 2008).

An area of particular interest may be to extend the literature on clinical diagnoses and SDMs. This review has already considered the clinical relevance of research into SDMs and the studies that have explored SDMs in clinical diagnoses have reported findings that indicate that an individual's self-definition is tied up thematically with current difficulties (e.g. Maccallum &Bryant, 2008; Raffard et al., 2009). It is a possibility that research in this area could further the development of models of clinical diagnoses. It would be interesting to look at SDMs in anxiety disorders, for example would this population recall more threat-related SDMs? Previous research has explored autobiographical memories in generalised anxiety disorder and found this population recalled more memories relating to nervousness and anxiety (Burke & Mathews, 1992). Another clinical group of interest in which to examine SDMs is bipolar disorder. Drawing upon previous research this would be interesting for a number of reasons: firstly, mood has been found to influence autobiographical memories (Bower, 1981; Williams et al, 2007) and bipolar disorder is characterised by extreme changes in mood so it would be interesting to see the effects this may have had on recalling memories pertinent to self-definition. Secondly, particular personality traits found in this review to

be related to SDM recollection, such as neuroticism (McLean & Fournier, 2008; Sutin, 2008) and extraversion (McLean & Fournier, 2008), have also been found to be associated with mood states in bipolar disorder (Murrey, Goldstein & Cunningham, 2007).

In summary, this review has found that a diverse range of individual factors affect the recollection of SDMs across numerous dimensions, both in terms of memory content, but also the phenomenology of recalling memories that are viewed as fundamental to self-definition. This area of research appears to have both clinical and theoretical implications but this is a topic which warrants further exploration in a number of new directions.

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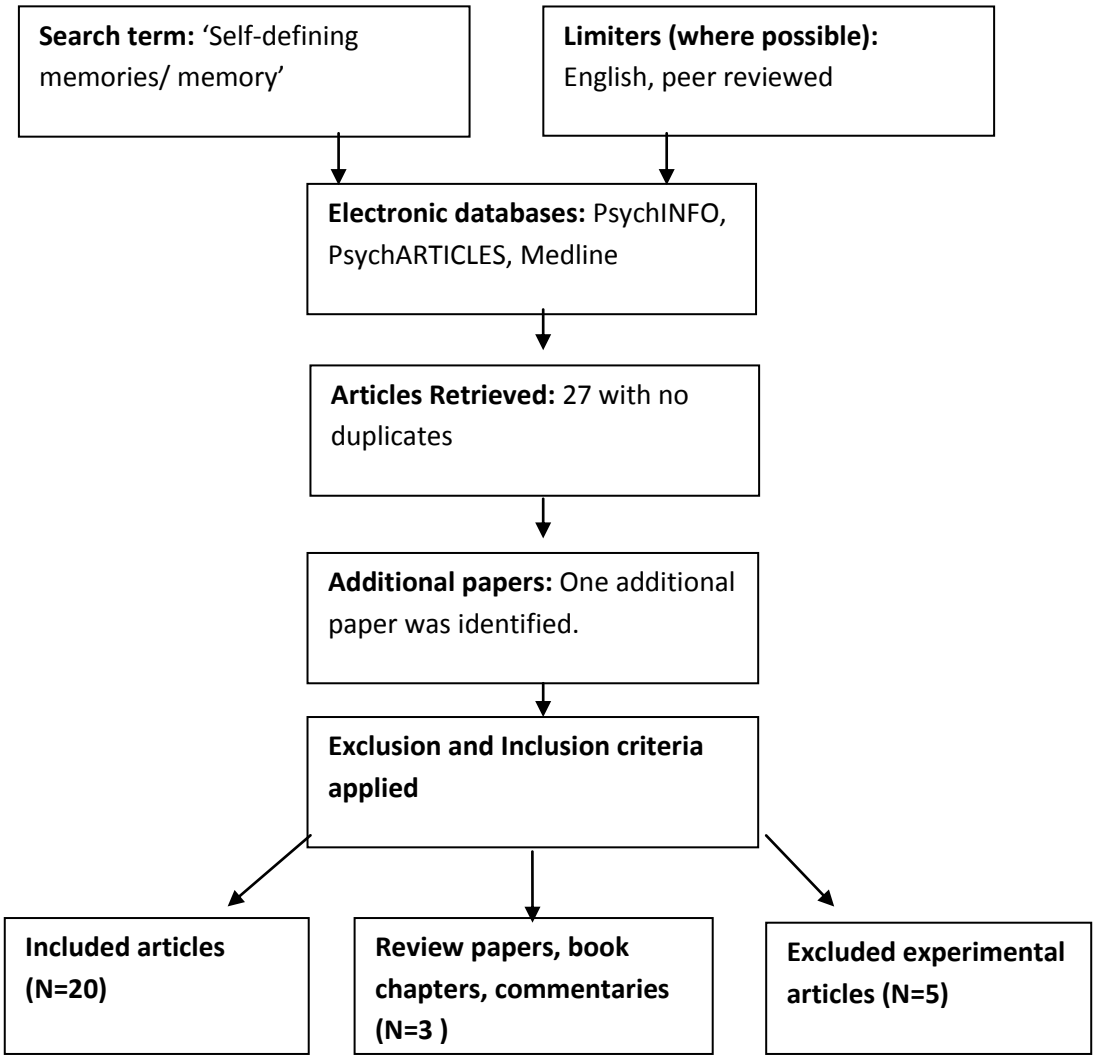

Figure 1. Flowchart of article selection process

Table 1. Summary information of included articles.

Authors	Sample	Main research aim/ question	Key findings relating to review question	Quality Assessment Value
Blagov & Singer (2004)	N= 104 undergraduates	Exploration of SDMs in and their relationship to Self-Restraint, Subjective Expression of Distress and Repressive Defensiveness as measured using WAI-SF (Weinberger, 1997, 1998).	Relationship found between aspects of personality adjustment and SDMs. Memory specificity was inversely related to Repressive Defensiveness. Greater meaning making in memories was related to moderate and high Self Restraint. Content and affect related to self-defining memories predicted the degree of subjective distress reported by participants.	18
Jobson & O'Kearney (2006)	N = 24 Asian undergraduates N= 26 Australian undergraduates	Investigation into cultural differences in autobiographical memory of trauma, disrupted adjustment to trauma (measured using IES-R: Weiss & Marmar, 1997) and effects of trauma on self-definition.	Cultural differences in relationship between disrupted adjustment to trauma and trauma themed self-definition: disrupted adjustment to trauma associated with trauma themed SDMs for Australian participants but not Asian participants.	16

Jobson & O'Kearney (2008[a])	N = 24 Asian undergraduates N= 26 Australian undergraduates	Exploration of cultural differences in retrieval of SDMs.	Australians recalled significantly more autonomous themed SDMs whereas Asian participants recalled significantly more relatedness themed memories.	18
Jobson & O'Kearney (2008[b])	N= 106 trauma survivors (Independent culture: PTSD= 26, no PTSD= 31) (Interdependent culture: PTSD= 24, no PTSD= 25) Diagnostic tool: PDS (Foa et al, 1993).	Examination of cultural differences in SDMs, goals and self-cognitions in individuals exposed to trauma (with and without PTSD). Goals were measured using Emmon's (1986) task, and self-cognitions were assessed using the Twenty Statement Test (Kuhn & McPartland, 1954). Both were coded for independent and interdependent aspects of self and theme of trauma.	Trauma survivors with PTSD from independent cultures reported more goals, SDMs, and self-cognitions than non-PTSD trauma survivors from independent culture. No difference in trauma survivors from interdependent cultures with and without PTSD in terms of goals, SDMs, and self-cognitions.	18
Maccullum & Bryant (2008)	N= 20 Complicated grief N= 20	Comparison of SDMs of bereaved individuals with and without a diagnosis of complicated grief.	More self-defining memories involving the deceased were recalled by complicated grief participants than	18

	Non-complicated grief Diagnostic tool: Complicated Grief Assessment (Zhang et al, 2006).		those without complicated grief. Memory narratives of participants without complicated grief showed more evidence of benefit finding and less negative emotion upon recall than the complicated grief participants.	
McLean (2005)	N= 185 undergraduates	Investigation of the relationship between meaning in SDMs and reasons for sharing memories (self-explanation or entertainment).	SDMs were more frequently shared for the purpose of self-explanation rather than entertainment. Meaning making in SDMs was found to be more common in memories shared for the purpose of self-explanation.	18
McLean (2008)	N= 49 in older group (N= 25 male participants) N= 85 in younger group (N= 42 male participants)	Comparison of autobiographical reasoning in SDMs for older and young adults.	No difference found in frequencies of self-event connections or levels reflective processing between the two age groups. Older adults' SDMs had more thematic coherence and stories about stability whereas younger adults had more narratives about change. Some gender differences were	18

			found in processing of SDMs and connections made.	
Mclean & Fournier (2008)	N= 49 older adults N= 85 younger adults (only 119 used for analyses)	Examination of the relationship between personality (BFI: John & Srivastava, 1999), ego development (Washington University Sentence Completion Test, Hy & Loevinger, 1996), and the content of connections made between self and events in SDMs, and processes of autobiographical reasoning.	Cognitive effort and evaluation differed across connection type; ego development and personality traits appeared to moderate some of these results. Individual differences were present in cognitive effort and evaluation.	16
McLean and Thorne (2003)	N = 88 late-adolescent European Americans	Exploration into themes of separation and closeness in adolescents SDMs of relationships. Relevant to this review, it also looked at gender differences.	Females tended to report a higher percentage of SDMs about closeness than males. Conflict positively associated with meaning.	18
Moffitt & Singer (1994)	N= 117 undergraduates.	Investigation of the relationship between affective responses to SDMs and personal strivings (measured using Emmon's (1986) sentence-stem task).	Participants recalling more memories relevant to attainment of personal strivings felt more positively about the memories recalled. Participants who had more	18

			avoidance strivings recalled more memories related to non-attainment of strivings. Association between personal strivings and affective response to memories.	
Moffitt, Singer, Nelligan, Carlson & Vyse (1994)	N= 90 undergraduates Median split into lower and higher depression scores using MAACL-R (Zuckerman & Lubin, 1985).	Examination of depression and SDM narrative type in a non-clinical sample of college students.	Participants with higher depression scores recalled significantly more summary memories for positive SDMs than those with lower depression scores. No significant difference was found between groups asked to provide negative SDMs. These results indicate an overgeneral memory bias for positive memories for people with lower mood as has been found in previous studies (Williams & Broadbent, 1986).	17
Raffard, D'Argembeau, Lardi et al (2009)	N= 20 with Schizophrenia N=20 healthy controls	Exploration of SDMs in schizophrenia.	People with schizophrenia were found to produce fewer integrated self-defining memories than the control group but there were no differences between the groups in terms of the number of specific versus summary SDMs	17

	Diagnostic tool: SCID-IV (First et al, 1995).		recalled. Participants with schizophrenia were found to produce fewer memories characterised by Achievement content and more memories characterised by mental illness. A difference in the reminiscence bump peak was found between the two groups.	
Singer, Rexhaj & Baddeley (2007)	N= 49 undergraduates (M= 18.93) N= 44 older adults (M= 64.63)	Comparison of SDMs in older adults and college students.	Older adults' SDMs were more positive in emotional tone, more summarised, less detailed, and more likely to contain integrative meaning than younger adults.	18
Sutherland & Bryant (2005)	N= 17 with PTSD N= 16 trauma-exposed no PTSD N= 16 non-trauma exposed	Investigation of the relationship between SDMs and personal goals (Emmon's 1986, 1989) in individuals exposed to trauma (with and without PTSD).	PTSD participants reported more SDMs that were trauma-related, negative, and from adult years than the non-PTSD group and controls. Trauma related goals were found to be associated with trauma-related SDMs.	17

	controls Diagnostic tool: CAPS (Blake et al, 1995).		

Sutin (2008)	Study 1: N= 162 undergraduates (81% female) Study 2: N=345 undergraduates (74% female)	Examined whether SDMs (content and phenomenology- measured using MEQ: Sutin & Robins, 2007) mediate the relationships between Neuroticism (BFI: John & Srivastava, 1999) and Subjective Health (Life Satisfaction Scale: Campbell et al, 1976) and secondly, Conscientiousness (BFI) and Achievement strivings (Achievement Goals Questionnaire; Elliot & Church, 1997) and study skills (Study Skills Questionnaire; Elliot et al, 1999).	Study 1: Neuroticism was found to correlate positively with somatic complaint, negative affect, emotional intensity and Distancing. Negative affect and emotional intensity mediate between neuroticism and subjective health whereas distancing appeared to mediate relationship between neuroticism and Life Satisfaction. Study 2: High conscientious scores associated with memories with positive affect and achievement-related content.

			Positive correlation between conscientiousness and mastery and approach goals. Positive affect of SDMs appeared to mediate relationship between Conscientiousness and deep processing.

Sutin & Robins (2005)	Study 1: N= 200 undergraduates (75% women) Study 2: N= 156 undergraduates	Exploration of personality and SDMs. Study 1 explore self-esteem (RSE: Rosenberg, 1965), and narcissism (NPI: Raskin & Terry, 1988). This paper also examines Self-conscious emotions (TOSCA; Tangney et al, 2000) in relation to SDMs. Study 2 examined personality constructs of extraversion, conscientiousness, agreeableness and neuroticism (NEO-FFI; Costa & McCrae, 1992), wellbeing (Overall Life Satisfaction, Campbell et al, 1976; Adjustment to College Scale, Aspinwall &	Study 1: Emotions and motives appear moderately stable across memories over time. High self esteem appears associated with more positive affect and less negative affect, whereas narcissism is associated with more positive affect but not less negative affect. Study 2: Association between the emotions and motives of self-defining memories and changes in personality, well-being and academic performance over 4 year period.

		Taylor, 1992; Perceived Stress Scale (reverse scored), Cohen, Karmarck & Mermelstein, 1983) and academic achievement (Grade Point Average and graduation status).		
Sutin & Robins (2008)	Study 1: N= 200 undergraduates (75% female) Study 2: N= 300 undergraduates (75% female)	Examination of personal strivings (Emmons, 1999), self-esteem (RSE; 1965), narcissism (NPI; Raskin & Terry, 1988) and SDMs.	Study 1: Personal strivings are related to the emotional and motivational content of self-defining memories, and to measures of self-esteem and narcissism. The relationship between personal strivings and personality is to some extent mediated by memory content Study 2: Similar findings to study 1 extended over time; reciprocal influences of strivings and memory content.	16

Thorne & McLean (2002)	Study 1: N= 139 students (63% female). Study 2: N= 41 Female students reporting LTE in study 1. N= 25 Male students reporting LTE in study 1.	Examination of gender differences in the emotional construction of life-threatening events (LTE) regarded as self-defining memories.	Study 1: Relationship events were most prevalent (40%), followed by LTE's (22%), Leisure events (20%) and Achievement events (12%). There were no significant differences between male and female participants. Study 2: Toughness narratives were significantly more prevalent for men, whereas Compassionate narratives were significantly more prevalent for women. Vulnerable narratives were equally prevalent for men and women and occurred in equal measure to the gendered positions. Women's emotional position in memory narratives was more conditional on type of LTE.	18
Thorne, McLean & Lawrence (2004)	N= 168 undergraduates	Investigation of the types of SDMs that show spontaneous references to larger meanings.	Meaning making occurred more in SDMs containing references to tension. SDMs that had been shared with others displayed same proportion of references to	17

			meaning as those not told to others.	
Wood and Conway (2006)	Study 1: N= 279 students Study 2: N= 77 students	Examination of subjective impact of events in SDMs, affective response to SDMs and meaning making. This study also examined gender differences.	Study 1: Subjective impact was found to be a predictor of meaning making in SDMs. Study 2: For negative memories, participants recalled less negative and more positive emotion than recall experiencing at the time of the event. For positive memories, reported equally positive affect and less negative emotion in comparison to what participants recalled feeling. Gender differences were observed.	18

PART TWO:

Empirical Study

The influence of mood on self-defining memories in bipolar disorder

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Please see Appendix 3 for the Guideline for Authors.

Abstract

Self-defining memories are a specific type of autobiographical memory which may be considered important in the development of self-identity. Previous research has suggested that changes in mood have an impact upon self-concept and that this is greater for people with bipolar mood disorder. This study investigated the influence of experimentally induced mood-variations in individuals with bipolar mood disorder and a control group on the recollection of self-defining memories. Memories were explored in terms of the themes apparent within them, affective response, positive self perception, vividness and importance. It was found that there were no differences between the clinical and the control group in terms of the degree mood variations affected self-defining memories, but there was partial support for the hypothesis that mood may have an effect upon self-defining memories. Despite the notion that self-defining memories relate to personal memories that an individual feels says something about who they are, this study revealed that individuals with bipolar disorder recalled memory narratives that were related to a disrupted sense of identity or 'acting out of character'. The findings are considered with regard to the background literature and theoretical and clinical implications are considered.

The influence of mood on self-defining memories in bipolar disorder

A number of cognitive deficits have been reported to occur in patients with a diagnosis of bipolar disorder (Robinson, et al, 2006). More specifically, some of the reported deficits include impairments in attention (Clark, Iverson & Goodwin, 2002), memory (Rubinsztein, Michael, Paykal, Sahakian, 2000) and executive functioning (Sweeney, Kmiec & Kupfer, 2000). Findings indicative of a disturbance in autobiographical memory processes (Scott, Stanton, Garland & Ferrier, 2000; Williams et al., 2007) are of particular interest considering the premise that our sense of self is reliant upon our memories of past experiences (Adler, 1931; Conway & Pledyll-Pearce, 2000; Conway, 2005; McAdams, 1996).

Autobiographical memories of rapid-cycling bipolar patients have been found to show effects of the mood dependent memory bias (Eich, Macaulay & Lam, 1997; Lam & Mansell, 2008). Mood dependent memory refers to the tendency for the retrieval of information to be more effective when the emotional state at time of retrieval matches the emotional state at the time of learning or encoding the information. It has also been found that individuals with bipolar disorder recall a higher proportion of general memories compared to specific memories (Mansell & Lam, 2004; Scott et al., 2000); this overgeneral memory bias has also been found to occur in other affective disorders including unipolar depression (Williams et al, 2007) and has been associated with ineffectual problem solving (Goddard, Dritschel & Burton, 1996; Scott et al., 2000). A single-case study of a rapid-cycling individual with bipolar disorder revealed that depression seems to be associated with general and unpleasant autobiographical memories that are recalled with a reduced latency compared to autobiographical memories recalled during mania which were associated with more specific and pleasant

autobiographies (Lam & Mansell, 2008). Research has also indicated that mood can influence the appraisal of past events (Clark & Teasdale, 1986).

However, the effects of mood on memory recall are not limited to clinical populations, and the relationship between mood and memory has been widely discussed in the literature (Bower, 1981; Williams et al., 2007). In addition to the previously described phenomenon of mood dependent memory, Bower (1981) also outlines the phenomenon of mood-congruent memory which describes the finding that memories generated are likely to be congruent with an individuals' current mood, for example recalling sad memories when feeling depressed.

Nonetheless, when considering the relationship between mood and memory, it is interesting to think about the effect that the aforementioned phenomenon may have in individuals whose mood is more changeable than the general population, such as in the instance of bipolar disorder which is characterised by individuals' experiencing episodes of depression and episodes of mania or hypomania, and is reported to affect approximately 1% of the population (Bebbington & Ramana, 1995).

Current theories of autobiographical memory very much emphasise the inherent associations of memory with self-identity (Conway, 2005; Conway & Pledyll-Pearce, 2000; Conway, Singer & Taghini, 2004; Singer 2005). The Self-Memory System model (SMS: Conway & Pleydell-Pearce, 2000) proposes that there are two components to self-memory. Firstly, the autobiographical memory base which has a hierarchical structure containing knowledge of lifetime periods, general events and specific events. The second component of the SMS consists of our current goals and perceptions of self. This model outlines a reciprocal relationship between these two components that functions to maintain a coherent sense of self; firstly, current personal goals and ideas about self will constrain memories recalled so that they are congruent with current self-

perception, but the SMS also highlights the central role of our memories in the development of self-image and construction of goals. Furthermore, theories of personality development also recognise this important relationship between memory and self (McAdams, 1995, 1996) suggesting that identity is merely the story that we construct from our memories (McAdams, 1995, 1996). Arguably, if sense of self is intrinsically linked to our memories, which in turn can be biased by mood as previously discussed, it can be argued that people with bipolar disorder who experience extreme variations in mood may have a more disrupted sense of identity.

Power, de Jong, and Lloyd (2002), found that bipolar patients showed self-concepts strongly compartmentalised between positive and negative ideas, whereas a comparison group had a greater degree of integration between positive and negative self-concepts. These findings were considered in relation to Showers' (1992) model that suggests for individuals with a more compartmentalised self-concept, if any one negative/positive idea of self is activated from a particular area of their life (e.g. work), then only other negative/positive ideas about self relating to this area will be activated. If, alongside these ideas, the Affect Infusion Model (AIM: Forgas, 1995) is considered, which suggests that mood congruent judgements may occur when individuals' use their current mood as information, it is possible that when in a negative mood, individuals who have more compartmentalised self-concepts (such as individuals with bipolar disorder as discussed in Power et al., 2002) may have an entirely negative view of self, whereas in positive mood they may have an entirely positive view of self.

Mood state has been found to alter the degree of discrepancy between self-actual and self-ideal representations with larger discrepancies found in bipolar depressed patients compared to currently manic bipolar patients and healthy controls, whereas, patients with current mania, or hypomania, displayed more consistency between self-

actual and self-ideal representations than non-clinical controls (Bentall, Kinderman, & Mason, 2005). This suggests that mood state does have an effect on self-concept, and significantly more so in individuals with bipolar disorder compared to a non-clinical population. Leading from this, it can be suggested that due to more frequent short-term changes in self-perception, a more long- term instability of self-concept is created. A qualitative study revealed that some individuals with bipolar disorder have found it difficult to establish continuity in their sense of self as having bipolar disorder had created contradictory experiences of self leading to confusion and self-doubt (Inder, Crowe, Moor, Luty, Carter & Joyce, 2008).

Increasingly, the relationship between self and autobiographical memories has been investigated using 'self-defining memories' (SDMs: Singer & Moffitt, 1991-1992) which are a specific type of autobiographical memory which are of important and specific events in our personal histories that we believe help us to define who we are (Singer, 2005). The literature that discusses the initial studies investigating SDMs describes them as being "*vivid, affectively charged, repetitive, linked to other similar memories, and related to an important unresolved theme or enduring concern in an individual's life*" (Singer & Salovey, 1993 pp. 13).

More recently, self-defining memories have been examined in several clinical populations including complicated bereavement (Maccallum and Bryant, 2008), depression (Moffitt, Singer, Nelligan, Carlson and Vyse, 1994), schizophrenia (Raffard, D'Argembeau, Lardi, Bayard, Boulenger, & Van Der Linden, 2009), and post-traumatic stress disorder (Jobson & O'Kearney, 2008; Sutherland & Bryant, 2005). Across these studies it was found that self-defining memories were saturated with thematic content relating to the clinical population. Sufferers of post-traumatic stress disorder were found to recall more negative self-defining memories, and memories that were trauma-related

(Jobson & O'Kearney, 2008; Sutherland & Bryant, 2005). Schizophrenia patients recalled more memories with themes of hospitalization and stigmatisation, and less memories characterised by achievement than healthy controls (Raffard et al., 2009). Bereaved individuals experiencing complicated grief tended to recall more self-defining memories that were related to their lost loved one compared to bereaved individuals without complicated grief (Maccallum & Bryant, 2008). Moffitt et al. (1994) investigated effect of depression on SDMs in a non-clinical sample and found that individuals with higher depression scores were found to recall significantly more summary memories, and less single event memories when requested to recall a positive self-defining memory but no significant differences were found between participants with asked to provide a negative self-defining memory.

Furthermore, a number of studies have observed an association between certain personality constructs and SDMs. Participants with higher neuroticism scores were found to rate themselves as more distant from their SDMs, rate memories as more emotionally intense, and would report more negative affect for SDMs recalled (Sutin, 2008). Higher neuroticism has also been found to be associated with a lower likelihood of making connections between SDMs and attitudes and perspectives about the world (McLean & Fournier, 2008). Individuals with high self-esteem reported more positive affect and less negative affect in their memories and recalled memories that appeared to be motivated by achievement (Sutin & Robins, 2005). Extraversion was found to be positively correlated with increased likelihood of emotional evaluation of memories and also the number of connections made between SDMs reported and the individuals' values and beliefs (McLean & Fournier, 2008). These studies are of particular interest because it has been found that the aforementioned personality constructs are associated with bipolar disorder (Knowles, et al, 2007; Murray, Goldstein & Cunningham, 2007).

Higher levels of neuroticism have been associated with bipolar disorder, and higher levels of extraversion have been found to be linked with a predisposition to mania (Murray et al., 2007). With regards to self-esteem, Knowles et al. (2007) found that individuals with bipolar disorder displayed increased instability on this construct.

Considering the aforementioned evidence regarding the influence of both personality variables and psychiatric disorders on SDMs, it can be hypothesised that self-defining memories of individuals with bipolar disorder will differ to the SDMs of the general population. Previous research has shown biases in autobiographical memories in bipolar disorder but it is not known whether similar disturbances are present in self-defining memories, a more specific, and personally relevant type of autobiographical memory. It is also interesting to consider whether variations in mood would impact the recollection of self-defining memories in a bipolar population in a similar way to the effects mood has on more general autobiographical memories.

The clinical relevance of research in this area regards the potential for findings to contribute to our understanding of how changes in mood can influence our perception of our memories and subsequently our perception of self. This change in self-perception could translate into behavioural changes, thus providing insight into depressive or manic relapse. Furthermore, such research may have implications for therapeutic interventions; the capacity to learn from experience and integrate experiences is a common goal of therapy across varying therapeutic models (Singer, Baddeley & Frantsve, 2008).

Present Study

The aim of the present study was to examine the effects of positive and negative mood on the recollection of self-defining memories, in terms of the thematic content of

memories, and self-ratings relating to both affective responses to memories, and sense of self. Variations in mood were explored using a laboratory-induced mood induction procedure. This approach has a number of benefits in comparison to using natural mood changes: firstly, each participant could complete the experiment on a single occasion, secondly, by using laboratory-induced mood changes it meant that the clinical and control groups were treated comparably and thirdly, it allowed a wider range of individuals with bipolar disorder to take part, that is they did not have to be experiencing a current mood episode. The laboratory-induced changes in mood provided a basis for comparison between individuals with a diagnosis of bipolar 1 disorder and a control group with no history of psychiatric diagnoses. Participants were randomly assigned to either the positive or negative mood condition in order to address the following hypotheses:

I. It is predicted that following positive mood induction participants will recall memories with higher ratings of themes related to positive self-definition including achievement and positive relationships. Differences on these themes between ratings given to SDMs recalled while participants were at their 'usual' level of mood, and SDMs recalled during mood induction, are expected to be greater in the bipolar group.

II. Under negative mood induction participants are predicted to recall memories with higher ratings of themes related to negative self-definition including of disrupted relationships, failure, guilt, in addition to more generally negative memories such as about life-threatening events, illness, or abuse. Differences on these themes between ratings given to SDMs recalled while participants were at their 'usual' level of mood, and SDMs recalled during mood induction, are expected to be greater in the bipolar group.

III. SDMs from the bipolar group are predicted to include higher ratings of thematic content relating to the theme of having a disrupted sense of identity in comparison to the control group.

IV. The appraisal of SDMs will be dependent on mood, particularly in the bipolar group. It is predicted that under positive mood induction, participants will experience more positive affect in response to SDMs and provide higher ratings relating to positive self-perception. It is expected that these differences will be more salient in the bipolar group.

V. In the negative mood condition, participants are expected to experience more negative affect in response to their SDMs, and provide lower ratings relating to positive self-perception. It is expected that these differences will be more salient in the bipolar group.

Method

Design

A mixed between- and within-subjects design was employed for this study. Between-subjects variables were: participant group (clinical or control), and mood induction (negative and positive). There was one within-subjects variable which was time (self-defining memories were provided by participants at two time points: while at their 'usual' level mood [i.e. not under the effects of mood induction] and immediately after mood induction. Memories were rated at three time points; 'usual' mood condition, under mood induction and once mood had returned to 'usual' or pre-induction level). To avoid order or fatigue effects in recalling memories (such as milestone life events in the first task, or eliciting fewer memories or SDMs of less

significance in second task), the self-defining memory task at 'usual' level of mood, and the task under mood induction were counterbalanced across participants.

Power calculations were based on testing an interaction between participant group and mood condition for the presence of the theme of 'Life Threatening Events'[1] in SDMs and were computed using the NCASS and PASS software (2002). Anticipated means on this scale were: 0.5 for bipolar, positive mood; 3.5 for bipolar, negative mood; 1.5 for control, positive mood and; 2.5 for control, negative mood. The anticipated within-group standard deviation was 1.18 (from the results of Sutherland and Bryant, 2005). This led to an anticipated effect size of 0.424 for the interaction. Using a 5% significance level, an F-test from a two-way analysis of variance will have approximately 90% power to detect this effect size for the interaction if 15 participants in each of the four conditions are recruited

Participants

All participants were aged between 18 and 65. Potential clinical participants who had previously expressed an interest in taking part in research projects about bipolar disorder were contacted by telephone. Further clinical participants were recruited through voluntary organisations, local community mental health teams and primary care psychology services. Individuals with no history of mental health problems were recruited for the control group using opportunity sampling at a university and in local community groups.

Prior to participation in the study, the Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer, Gibbon and Williams, 2002) was administered to ascertain

[1] The theme of 'Life Threatening Events' was used in this calculation as it was considered to relate to the 'trauma' theme examined in Sutherland and Bryant's (2005) study of SDMs.

current diagnoses and lifetime history of Axis 1 disorders. Any participants meeting DSM-IV criteria for current substance disorder, or current schizoaffective disorder were excluded from the study. Participants reporting psychotic symptoms occurring outside of a bipolar episode were also excluded. Bipolar participants were required to meet DSM-IV criteria for bipolar 1 disorder, but not criteria indicating the presence of a current mood episode. Control participants were required to report no history of psychiatric diagnosis.

Screening for current symptoms of depression and mania for all participants was conducted using the Beck Depression Inventory (BDI-II; Beck et al, 1996) and Mania Rating Scale (MRS: Bech, Rafaelson, Kramp, and Bolwig, 1978). Participants that exceeded scores of 13, and 5, on the BDI and MRS, respectively, were excluded from the study.

Measures

Structured Clinical Interview for DSM-IV- Axis I (SCID-IV; First et al., 2002).

The SCID-IV was designed for the purpose of assessing the presence of current and lifetime Axis I disorders according to DSM IV (SCID-IV; First et al., 2002). Interview questions correspond with diagnostic criteria for the most commonly seen Axis-I disorders including mood disorders, psychosis, anxiety disorders, substance dependence and eating disorders. In this study, diagnostic interviews were conducted by the first author who received training and practice sessions on administering, and scoring the SCID-IV. A sample of interviews were recorded so that another researcher could independently score the SCID-IV; there was 100% agreement of diagnosis of bipolar I disorder between the two researchers.

Beck Depression Inventory-II (BDI-II; Beck, Steer, Ball & Ranieri, 1996)

The BDI-II is a self-report questionnaire designed to measure depressive symptoms over the last two weeks. 21 items are scored on a scale of 0-3; a score of 14-19 is considered to indicate mild depression, 20-28 indicates moderate-severe depression, and 29-63 indicates severe depression. The BDI-II has been found to have high internal consistency (coefficient alpha = .91, Dozois et al., 1998).

Mania Rating Scale (MRS: Bech, Rafaelson, Kramp, and Bolwig, 1978).

The MRS is an 11-item, observer-rated scale relating to common manic symptoms. Each item is rated on a five-point scale (0= not present to 4= severe or extreme). Scores below five indicate no mania, 6-9 indicates hypomania, or mild mania, 10-14 indicates probable mania and 15 plus suggests definite mania. This measure has good internal consistency (Cronbach's Alpha= .90; Bech, 2002) and good inter-rater reliability (Bech et al, 1978).

Adapted Self-Defining Memory Task (based on Singer and Blagov, 2004).

Participants were required to generate and rate SDMs on a 7 point scale (0= not at all to 6= extremely), 12 emotions evoked when recalling the memory; vividness and importance of the memory (see Singer and Salovey, 1993 for history of research done with this task). This task was adapted for this study by adding attributes associated with a state of being 'mildly high' taken from the Sense of Hyper-Positive Self Scale (SHPSS: Lam, Wright and Sham, 2005) with the instruction for participants to rate how they felt about themselves when recalling the memory.

Coding scheme for self-defining memories (based on Thorne and McLean, 2001).

Each memory was rated on a scale of 1 (not at all present) to 6 (extremely present) across the following themes (1) Life-threatening events (2) Self being violated/abused (3) Undisrupted relationships (4) Disrupted relationships (5) Achievement, mastery and goal attainment (6) Guilt/ shame (7) Disrupted sense of self (8) Failure and lack of self-efficacy (9) Mental illness. These individual ratings were used to produce a mean score for each theme for the memories recalled at 'usual mood', and under mood induction (instructions for raters can be found in appendix nine).

The coding scheme for examining the content of self-defining memories used in this study was based on 'The manual for Coding Events in Self-defining Memories' (Thorne and McLean, 2001) which has been used in several previous studies (e.g. Blagov and Singer, 2004; Raffard et al., 2009; Thorne, McLean and Lawrence, 2004). However, as this coding scheme was developed based on the SDMs of undergraduates it was decided to add some additional categories that may be more specifically linked to the clinical sample used in this study. Additional categories were developed through a process of the first author and a second researcher reviewing the initial memories that were collected and looking for any commonly occurring themes that did not fit into Thorne and McLean's scoring system. In addition to this, the previous research presented in the introduction of this paper was considered in relation to developing additional categories. Subsequently, themes of self being violated/abused, disrupted sense of self, failure/ lack of self efficacy, and mental illness were created.

Mood induction materials

The mood induction materials were two five minute films each comprising of three film and television clips. Individual clips were selected from a pool of clips that have been found to induce positive or negative moods (Newson-Davis, 2004; Wright, Lam & Newsom-Davies, 2005). The positive scenes included themes of comedy and triumph over adversity, and the negative scenes included themes of poverty, separation and bereavement.

Visual Analogue Scale (VAS).

A Visual Analogue Scale (VAS) was used to measure mood. Participants were required to indicate on a 100mm VAS, with the labels 'extremely happy' and 'extremely sad' at either pole. Previous research has used VAS to record small mood changes (e.g. Farmer et al., 2006). This method can be a useful way of quantifying mood change but due to the subjective nature of VAS, these scales are of less value for making between-subjects comparisons, and are more valuable for identifying within-subject change.

Procedure

Information sheets were sent to all participants prior to the day of testing. Written informed consent was obtained for all participants after participants were given time to discuss the study.

The relevant sections of the SCID were administered, followed by the BDI-II and MRS to ascertain whether participants met the inclusion criteria for the study. Demographic information was obtained including date of birth, gender, ethnicity,

marital status, education, and employment status. The clinical group were asked about current medications for bipolar disorder, lifetime manic and depressive episodes (including age of onset of bipolar disorder), and history of hospitalizations for manic and depressive episodes. All participants were asked to rate their current mood on a visual analogue scale (VAS). This was used as an indication of their 'usual' mood (meaning their general mood on the day of the study, and not under the influence of mood induction).

Self-defining memories were obtained for each group using the SDM task at 'usual' mood. Written instructions for the SDM task were given to each participant. Participants were then asked to recall 4 self-defining memories and to provide the experimenter with a few cue words that were to be used to help participants recall the memory later in the experiment. Participants were required to rate the SDMs on dimensions of sense of hyper-positive self, emotions evoked, vividness and importance. Following the rating of another VAS, participants were randomly assigned prior to either the positive or negative mood induction condition. Mood induction materials were presented on a laptop computer. Participants were again requested to rate their mood on a VAS after the mood induction procedure. Participants were then required to generate a further four SDMs using the SDM task. As before, the experimenter wrote down the cue words for each memory to prompt later recall. Participants were asked to complete the rating section of the adapted self-defining memory task in turn for each of the memories recalled during the mood induction. After completing the SDM task after mood induction, the VAS was used to make sure mood has returned towards the pre-induction level. Participants were then asked to re-rate the memories provided during mood induction to see if mood variation influences the ratings participants give to the memories (and subsequently rated another VAS). As the self-defining memory tasks

under mood induction and at 'usual' mood were counterbalanced, in cases where the mood induction condition occurred first, VAS ratings were used to ensure that participant's mood had returned towards their initial VAS rating before asking them to provide the second set of memories. The cue words taken down by the experimenter were used to help all participants to retrieve the self defining memories. These memories were then audio-taped for transcription and were rated on the dimension of theme by the main experimenter and a rater blind to the group status. A final, VAS was used to make sure the participant's mood had returned to the pre-induction level. All participants were fully debriefed at the end of the experiment, and asked whether they would like to receive information about the findings of the study.

Coding

Using the adapted coding scheme for SDMs the first author rated all memories collected for the presence of the aforementioned nine themes. A second rater, blind to participant condition and group rated 47% of the memories.

Results

In total, 61 individuals volunteered to take part in the study. Two volunteers for the control group were found to meet criteria for history of depression; three volunteers for the bipolar group were currently depressed and one volunteer changed their mind on the day of testing. Subsequently, 56 individuals were found to be suitable. The distribution of participants between the positive and negative mood induction conditions were 13/15 for clinical participants, and 14/14 for control participants. Demographic characteristics and clinical features of the included sample are presented in Table 1. No significant difference was found between the groups in age, marital status, educational

and employment status. No significant differences between the groups were found on measures of depressive or manic symptoms.

Insert table 1 about here

Preliminary Analyses

Firstly, repeated measures ANOVAs were employed to check whether significant changes in mood had occurred in each mood induction condition. VAS ratings for before and after the mood induction procedure were compared, and comparisons were also made between VAS ratings after mood induction and immediately before re-rating SDMs that were recalled under mood induction (means for each group are presented in table 2). Mauchly's test indicated that the assumption of sphericity had been violated for both the positive condition comparisons (Approx. chi-square = 6.118, $p = .047$), and negative condition comparisons (Approx. chi-square = 10.362, $p = .006$) therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity.

Main effects of time were revealed for the positive condition (F (1.633,40.816) =10.775, $p = .003$) and the negative condition (F (1.505,40.641) = 27.645, $p = .000$) indicating both mood induction procedures were successful . Planned within-subjects contrasts revealed that mood changed in the expected direction between the VAS rating provided pre and post induction procedures for both positive (F (1,25) = 21.281, $p = .000$) and negative conditions (F (1,27) = 34.830, $p = .000$). There was also a significant change in VAS ratings between mood induction and re-rating SDMs for both positive induction (F (1,25) = 7.856, $p = .010$) and negative (F (1,27) = 25.126, $p = .000$).There

was not a significant time x group interaction for either mood condition thus indicating that the groups' mood changed to a similar extent.

Insert table 2 about here

Secondly, to ensure affect items from the SDM rating sheet loaded onto the two factors reported in previous research (Blagov & Singer, 2004; Singer, Rexhaj & Baddeley, 2007), the mean scores for the 12 emotions on the self-defining memory rating sheets per participant were subjected to a factor analysis with varimax rotation. This was in accordance with procedures used in previous studies using this task (Blagov & Singer, 2004; Singer, Rexhaj & Baddeley, 2007). Based on variables that positively loaded positively on to only one factor (at least .40), two factors were found to emerge: Negative Affect (sad, angry, fearful, ashamed, disgusted guilty, embarrassed, contemptuous) and Positive Affect (Happy, Interested, Proud). These findings are consistent with previous studies (Blagov & Singer, 2004; Singer et al, 2007). Both factors had good internal consistency (Cronbach's $\alpha = .74$ and $\alpha = .91$, for Negative Affect and Positive Affect respectively).

Finally, a second independent rater (J.A. Singer), blind to the condition or participant group, coded responses for 47% of the total number of self-defining memories that were collected. Using a weighted kappa with linear weights, kappa coefficients for each theme were calculated using the VCD package (Meyer, Zeileis, & Hornik, 2009), on R2.9.1 (R Development Core Team, 2009). Overall there were high levels of agreement between the two raters.

Insert table 3 about here

Experimental hypotheses

As the SDM task at 'usual' mood and under mood induction were counterbalanced across participants, interactions with task order were also examined for the main analyses, these are based on two-tailed *p* values. As the main hypotheses predicted differences in a particular direction, all other *p* values reported in the following sections are one-tailed unless stated otherwise.

Thematic content

Group comparisons were conducted using ANOVAs for the mean ratings for each theme across the four memories collected while at 'usual' mood. Table 4 illustrates mean ratings for each theme for the both groups for memories. As themes were investigated across 9 dimensions, the Bonferroni correction was used and significant *p* values were set at $p < 0.006$.

Insert table 4 about here

As predicted, the bipolar group recalled significantly more narratives making reference to a disrupted sense of identity (F (1,52) = 13.086, p = .001). This finding was not affected by the order on which the SDM tasks were completed (F (1,52) = .592, p = .445). The bipolar group also recalled more memories in comparison to the control group relating to mental illness (F (1,52) = 32.500, p = .000). This finding was not affected by the order on which the SDM tasks were completed for either group (F (1,52) = 2.303, p =.135).

No predictions were made regarding the expected presence of other themes for SDMs recalled while not under the influence of mood induction, thus the following analyses report two-tailed *p* values. There were no significant differences between groups for the themes of life-threatening events (F (1,52) = 5.863, p = .019), self being violated (F (1,52) = 6.176, p = .016), undisrupted relationships (F (1,52) = 4.058, p = .034), disrupted relationships (F (1,52) = 1.063, p =.307), achievement (F (1,52) = 3.068, p = .086), guilt (F (1,52) = 4.896, p = .031) and failure (F (1,52) = 1.912, p = .173). There was not an effect of task order for any of these findings for either group (p > .006).

Effect of mood on thematic content

Difference scores for mean ratings of each theme were calculated by subtracting the mean score for memories recalled at 'usual' from the mean score for SDMs recalled under mood induction (see table 5). In order to address the hypotheses, ANOVAs were employed to ascertain the effect of mood induction condition and group on thematic differences between SDM task completed at 'usual' mood and under mood induction. As themes were investigated across 9 dimensions, the Bonferroni correction was used and significant p values were set at $p < 0.006$.

Insert table 5 about here

In relation to the first hypothesis, the themes of undisrupted relationships and achievement were examined. A main effect of mood condition was revealed for undisrupted relationships (F (1,48) = 9.180, p = .002). As predicted, differences on the presence of this theme between SDMs recalled at 'usual' mood and under mood

induction, were found to be significantly larger for participants in the positive mood condition. However, contrary to predictions a significant interaction of mood condition and group was not found indicating no differences between the groups (F (1,48) = .008, p = .464). In contrast to the first hypothesis, for the theme of achievement, a significant difference between mood condition x group interaction was not found (F (1,48) = .845, p = .181). The effect of mood condition also failed to reach significance (F (1,48) = 1.872, p = .089). Findings in relation to the first hypotheses were not affected by the order on which the SDM tasks were completed for either the mood induction condition, or either group (p > .006).

The second hypothesis predicted that there would be a greater degree of change for themes which may relate to negative self-definition in memories recalled following negative mood induction, and that this change would be greater for the bipolar group.

An effect of mood condition was found for differences for the theme of self being violated (F (1,48) = 10.692, p = .001). It was found that negative mood induction yielded difference scores for this theme that indicated higher ratings in comparison to SDMs recalled while not under the influence of mood induction. In contrast, positive mood induction difference scores indicated lower ratings for this theme while under the influence of positive mood induction compared to the 'usual' mood SDM task. No differences were observed between the groups as a group x mood condition interaction was not found to be significant (F (1,48) = 2.848, p = .049). These findings were not affected by the order on which the SDM tasks at 'usual' mood and under mood induction were completed for either mood condition, or group (p > .006).

Contrary to predictions, a significant mood condition x group interaction, nor effect of mood condition were found for the themes of disrupted relationships, life-

threatening events, guilt, failure, disrupted sense of self and mental illness ($p > .006$). Interactions between mood condition x task order, and mood condition x task order x group were not revealed for these themes ($p > .006$) indicating that these findings were not affected by the order on which the SDM tasks at 'usual' mood and under mood induction were completed.

Interestingly, it was observed that there did appear to be a main effect of group with bipolar participants having larger difference scores than the control group regardless of mood condition for the themes of failure (F (1,48) = 10.327, p = .002: two-tailed) and mental illness (F (1,48) = 9.585, p = .003: two-tailed).

Effect of mood on Memory Ratings

Repeated measures ANOVAs were used to examine the influence of mood change between the groups on the memory self-ratings across three time points ('usual' mood, during mood induction, re-rating following mood induction). Two comparisons were made: firstly, differences between memories recalled at 'usual' mood and during mood induction, the second comparison involved the ratings under mood induction and the second set of ratings for the same SDMs once mood had returned towards the pre-induction level. Table 6 shows the means (and standard deviations) of SDM ratings.

Insert table 6 about here

Mauchly's test indicated that the assumption of sphericity had been violated for the positive affect, negative affect, sense of hyper positive self, vividness and

importance scales so the for subsequent analyses degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity.

Affective Response

As predicted a significant time x mood condition interaction was revealed (F (1.234,59.229) = 8.834, p = .001). Planned within-subjects contrasts revealed significant differences between SDM ratings for memories recalled in while at a 'usual' level of mood and following mood induction (F (1,48) = 11.206, p = .001). In the positive mood condition, positive affect ratings were higher than ratings for SDMs not recalled during mood induction, whereas in the negative mood condition, positive affect ratings were lower. The within-subjects contrasts also revealed a significant difference in positive affect ratings for the *same* SDMs when comparing ratings provided under mood induction and then once mood had returned towards the pre-induction level (F (1,48) = 5.132, p = .012). In comparison to positive affect ratings completed under mood induction, the re-ratings for the same SDMs, once mood had returned to the pre-induction level were lower. In contrast, under negative mood induction variations of positive affect across these two time points did not appear to occur. There was no significant time x mood condition x group interaction for positive affect (F (1.234,59.229) = .915, p = 182).

With regards to negative affect, there was a trend indicating that positive mood induction resulted in lower negative affect ratings in comparison to SDMs recalled and rated while at a 'usual' level of mood, whereas SDMs rated in negative mood condition showed an increase in mean negative affect ratings however this failed to reach significance as an interaction between time and mood condition was not found (F

(1.259,60.430) = 1.868, p = .088). A significant interaction of time x mood condition x group was not revealed (F (1.259,60.430) = .345, p = .305).

Interactions between time x mood condition x task order, and time x mood condition x task order x group were not revealed for either positive or negative affect (p > .05) indicating that these findings were not affected by the order on which the SDM tasks were completed.

Sense of Hyper Positive Self (SHPS)

As predicted, a significant time x mood condition interaction was revealed (F (1.163,55.846) = 5.487, p = .009). Planned within-subjects contrasts revealed differences between SDM ratings from 'usual' mood and SDM ratings under mood induction (F (1,48) = 7.387, p = .005). In the positive mood condition, SHPS ratings were higher than SHPS memory ratings provided for SDMs recalled while not under mood induction, whereas in the negative mood condition, SHPS ratings were lower. There was also a significant difference in SHPS ratings for the same SDMs when comparing under mood induction and then once mood had returned to pre-induction level (F(1,48) = 4.617, p = .019). For SDMs rated under positive mood induction, SHPS ratings appeared to decrease the second time they were rated (once mood had returned to pre-induction level) but no variations were observed between time points for SDMs rated in the negative condition. The interaction between time, group and mood condition narrowly missed reaching significance (F (1.163,55.846) = 2.476, p = .059). Interactions between time x mood condition x task order, and time x mood condition x task order x group were not revealed for mean ratings relating to SHPS (p > .05), indicating that these findings were not affected by the order on which the SDM task while at 'usual' mood and under mood induction were completed.

Vividness and Importance

No predictions were made about the expected direction for vividness and importance thus these analyses report 2-tailed *p* values. On the dimension of vividness, there was not a significant effect of time (F (1.463, 70.223) = .496, p =.553), nor were any interactions revealed for time and mood condition (F (1.463, 70.223) = .145, p = .798) or between time, mood condition and group (F (1.463, 70.223) = .378, p = .621).

On the dimension of importance, there was no significant main effect of time (F (1.466, 70.350) = 2.852, p = .080), nor were any interactions revealed for time and mood condition (F (1.466, 70.350) = 2.208, p = .131) or between time, mood condition, and group (F (1.466, 70.350) = .434, p = .588).

Interactions between time x mood condition x task order, and time x mood condition x task order x group were not revealed for mean ratings relating to vividness or importance (p > .05) indicating that these findings were not affected by the order on which the SDMs task at 'usual' mood and under mood induction were completed.

Discussion

This study explored the influence of laboratory-induced mood change on the self-defining memories of individuals with a history of bipolar disorder and healthy controls. In addition to the phenomenon of mood-congruent memory (Bower, 1981), and the notion of making mood congruent judgements (Forgas, 1995), research has indicated that self-concept is also influenced by changes in mood and these discrepancies in the way 'self' is perceived across mood states are greater for individuals with bipolar disorder (Bentall et al, 2005). Subsequently, this study hypothesised that self-defining memories recalled under positive mood would contain

more themes relating to positive self-definition whereas negative mood induction would yield more self-defining memories relating to negative self-definition, and that these effects would be more salient in the bipolar group. Although this study did not find any significant differences between individuals with bipolar disorder, and a non-clinical control group, in terms of how self-defining memories were affected by mood induction, the hypotheses relating to the effect of mood on self-defining memory narratives were, in part, supported. Potential limitations of the study that may account for some of the non-significant results will be considered later in the discussion.

In relation to the effect of positive mood there did appear to be more self-defining memories relating to positive relationship experiences, but contrary to the predictions there was not an increase in achievement-themed memories. Participants also provided higher ratings in relation to sense of hyper-positive self, and the degree of positive affect in response to self-defining memories while under the influence of positive mood induction. Interestingly, following mood returning to the pre-induction level after the positive mood condition, re-ratings of the same SDMs on the dimensions of positive affect and sense of hyper-positive self appeared to reduce, whereas following negative mood induction these ratings remained more stable across the two time-points. This could suggest that a slight increase in positive mood exacerbates sense of positive self, which can quickly be affected when this positive mood then reduces.

In relation to the hypotheses that negative mood induction would lead to self-defining memories relating to negative self-definition there was only partial support. Firstly, negative mood induction appeared to have a significant impact on only one of the themes examined, there did appear to be more self-defining memories relating to narratives about being violated or abused, but contrary to the predictions there was not a difference between the groups for the effect of mood induction. Sense of hyper-positive

self when thinking about self-defining memories was lower in the negative mood condition, in terms of affective response to self-defining memories, and whereas, self-ratings indicated less positive affect for self-defining memories recalled under negative mood induction, there was not significantly more negative affect in response to these memories.

Theoretically, relative to the limited support for the hypotheses about the self-defining memories recalled under negative mood induction, one potential explanation could be that in attempts to repair sad mood, positive memories are recalled as has been found in previous research (Josephson, Singer & Salovey, 1996). A trend indicating more negative affect in self-defining memories recalled under negative mood induction was observed in this study but failed to reach significance. It is possible that due to this study collecting multiple self-defining memories (and then comparing mean ratings) positive memories may have been recalled under negative mood induction to repair mood (either due to the mood induction procedure, or if following recollection of distressing memories). It would be interesting to revisit the self-defining memories recalled during the negative mood induction to see whether there were any apparent attempts of repairing mood and whether this differed between the two participant groups.

More generally, from a theoretical perspective, Sedikides (1995) presents one reason that could explain why the present study only found limited support for the hypotheses relating to the influence of mood on self-defining memories. Sedikides (1995) found that self-conceptions are differentially influenced by mood, meaning that whereas less consolidated, or peripheral self-conceptions may display a mood congruent bias, central self-conceptions are more stable across mood states. In terms of this research, it could be considered that self-defining memories may represent these more

central views of self, thus are less affected by mood change than generic autobiographical memories might be.

This study also predicted that individuals with bipolar disorder would recall more self-defining memories with thematic content relating to a disrupted sense of identity, or behaving 'out of character'. The findings provided support for this hypothesis; bipolar participants did recall self-defining memories with significantly higher ratings in relation to the theme of disrupted sense of self than the control group. By their nature, self-defining memories are meant to reflect events that an individual feels defines who they are, therefore it is interesting that this study revealed that individuals with bipolar disorder recalled memories that contained themes of a disrupted sense of identity. However, these findings are consistent with the literature that suggest that the experience of mood episodes in bipolar disorder can lead to confusion and contradictory experiences of self, thus making it more difficult to form a cohesive sense of self and identity (Inder et al., 2008). It can be suggested that the influence mood has on self-perception (Bentall et al., 2004) leads to more frequent changes in self-concept as caused by recurrent mood episodes which in turn renders individuals with bipolar disorder less certain of their idea of 'self'.

Arguably, this finding can also be considered in terms of the SMS: if a major goal or striving for people with bipolar disorder is to integrate contradictory experiences of self, which may have occurred in relation to bipolar mood episodes (Inder et al., 2008), then this model might expect self-defining memories to reflect these experiences that lead to a more disrupted sense of self. It appears that for some individuals with bipolar disorder, part of their self-definition involves the challenge of integrating differential self-perceptions and actions that may be present in different mood states.

As would be expected, the bipolar group were found to recall more memories with higher ratings of the theme of mental illness in comparison to the control group, this is consistent with previous research into examining self-defining memories in relation to clinical diagnoses that have found SDM content to relate to the particular diagnoses under investigation (Maccullum & Bryant, 2008; Raffard et al., 2009; Sutherland & Bryant, 2005).

The adaptations to Thorne & McLean's (2001) content scoring system that were made in this study proved to be valuable. Firstly, a strength of this study was that each memory was rated across multiple themes through the use of a scale indicating the degree to which that theme was present. Secondly, the additional categories added for this study did appear to be relevant to this client group; significant differences between groups were found for the added themes of disrupted sense of self and mental illness. Furthermore, the additional themes were also reflected in the literature. Firstly, relative to the addition of the 'Mental Illness' and 'Failure/ lack of self efficacy' dimensions explored in this study, Raffard et al., (2009) had previously adapted the coding manual for self-defining memories for use with people with schizophrenia and included the categories of 'Hospitalization/ Stigmatisation' and 'Failure'. Secondly, as previously discussed, the additional theme of 'disrupted sense of self' was useful when examining the memory narratives of individuals with bipolar disorder, as would be expected based on the previous research that has found the development of self-identity in bipolar disorder highlights themes of disrupting, confusing and contradictory experiences of self (Inder et al., 2008).

Thirdly, the category of 'self being violated' had been separated out from the more generic 'Life-threatening events' category in Thorne & McLean's (2001) original scoring system. This was done because the authors of this paper felt that the experience

of being abused or harmed intentionally by another person was a very different experience to the death of a family member, accident or illness. Despite the present study not finding a significant difference between individuals with bipolar disorder and the control group for this theme, the category of 'self being violated or abused' can still be regarded as useful for exploring narratives in this clinical population due to the research that indicates an association between childhood physical and sexual abuse and bipolar disorder (Garno, et al., 2005; Leverich et al., 2002; Levitan, et al., 1998). More specifically, a childhood history of abuse has been suggested to be related to the severity and course of bipolar disorder (Leverich, et al., 2002), and it has been found that individuals with bipolar disorder who experienced multiple forms of abuse are more likely to rapid-cycle and be at greater risk of suicide (Garno, et al., 2005).

Limitations of the Study

A number of shortcomings in this study are acknowledged, some of which may account for some of the non-significant results. Firstly, it is possible that with larger numbers of participants this study would have yielded more significant findings. It should be noted that the number of participants recruited was slightly short of the sample size produced by the power calculation which could be a contributory factor to explain some of the null findings. However, it should also be considered that although a power calculation was used, it may not have been reliable and valid for this study as it was based on a study using a different clinical population, and not using a mood induction procedure. Secondly, it is likely that group differences may have been observed using natural changes in mood rather than a laboratory-produced mood induction procedure. However, the difficulty with this would be providing a basis for comparison whereas in the current paradigm both the control and bipolar participants were exposed to the same mood induction procedures and were not found to differ for

current depressive or manic symptoms. Another limitation of the mood induction procedure regards the possible effects of demand characteristics which may have led to participants indicating their mood had changed when it had not, or affected their responses in the experiment if they had made a guess at the hypotheses.

A further limitation of this study regards the decision to counterbalance the SDM tasks under mood induction and at the 'usual' mood level. This decision was made in order to avoid effects of order or fatigue, such as participants recalling fewer memories in the second condition, or memories that were less important to self-definition. Although, many participants did report feeling tired at towards the end of the study, all managed to recall eight memories as requested. However, task order was included in the analyses and was not found to significantly affect any of the results. Moreover, a strength of this study was that mood was monitored closely throughout the experiment, so for participants completing the mood induction SDM task first, it was ensured their mood more closely resembled their initial mood level (after the completing the re-rating sheets) before proceeding onto recalling more memories as part of the 'usual' mood SDM task.

However, if self-defining memories are comparable to Sedikides (1995) 'central' self-perceptions that are suggested to be less affected by mood, it can be suggested that regardless of which condition came first, participants may recall their most important memories first. However, interestingly, despite counterbalancing tasks, there did appear to be a tendency in this study for participants to rate self-defining memories as more important that were recalled while they were at their 'usual' level of mood rather than under the effects of mood induction, however this failed to reach significance.

Regarding the memory coding system developed for the present study, after reviewing all the memory narratives that were collected, it has come to light that despite attempts to refine the categories used to code memories, they are still very broad and it would be recommended that subsequent research into self-defining memories carefully adjusts categories to be more sensitive to the themes of interest to the research. In particular, in relation to the theme of 'disrupted sense of self' it should be considered that memories relating to behaving 'out of character' may have positive implications, such as being more sociable or outgoing than usual. A limitation of this study is that the coding scheme does not capture the variety of experiences that may relate to a disrupted sense of self, for example the current system does not reflect the distinction between instances where it may have been adaptive to act differently than usual, from narratives when behaving out of character may have had negative consequences.

Although, this study attempted to employ a second rater who would be blind to the participant group, the content of some of the self-defining memories meant it was clear whether the individual had bipolar disorder as memories were about their illness experiences. Potentially, this may have led to a degree of bias when scoring memories. However, despite this, the second rater was still blind to the mood condition that memories were recalled under.

Potentially, a limitation of this study regards whether participants differentially interpreted the instructions for the SDM task. Singer and Moffitt (1991-1992) discussed how some individuals may interpret the SDM request as asking for "*what is typical about me?*" (pp. 253) and then provide a typical example to explain this aspect of their self-definition rather than a specific memory. Following this initial exploration of self-defining memories, more recent versions of the task (including this study) have included the request for a specific memory. However, following completion of the experiment it

became apparent that a few participants selected self-defining memories through a process of thinking about how they defined themselves, and then choosing a memory that illustrates that important part of self. The process or strategy employed by participants when taking part in SDM research would be an interesting avenue to explore.

Clinical implications

The clinical relevance of research in this area regards the potential for findings to contribute to our understanding of how changes in mood can influence perception of self, which in turn could translate into behavioural changes, such as the examples discussed about acting out of character, thus potentially providing insight into depressive or manic relapse. This study found that positive mood induction led participants to have higher ratings of hyper-positive self, clinically, this could be indicative of entering a hypomanic state. Such information could be integrated into therapy, for example, psychoeducation to help clients recognise changes in self-perception as a prodrome of mania. However, as this study did not find this effect to be greater in a bipolar population, a degree of caution needs to be taken when considering the application to clinical practice until further research has been completed.

A further clinical implication relating to the idea of being aware of prodromal symptoms regards the experiences that may be classed as 'being out of character'. Not only could more self-defeating behaviours indicate a change in mood, but some of the apparently more adaptive 'disruptions' of self, such as being more sociable or confident than usual, could be indicative of becoming hypomanic (J.A.Singer, personal communication, June 8th 2009).

Whichever therapeutic approach is adopted it can be argued that the capacity to learn from our personal experiences and memories, and the task of integrating these into a cohesive story is a common goal across varying therapeutic models (Singer et al, 2008). This study found that individuals with bipolar disorder recalled self-defining memories relating to a disrupted and inconsistent sense of self; arguably the role of therapy would be valuable in helping these individuals to understand and integrate contradictory experiences of self. It should be considered that the collaborative process of formulating with clients in therapy is a way of helping them to integrate, and ascribe meaning to important memories (Blagov & Singer, 2004; Singer et al., 2007) which may be important in regulating affect, and helping people to cope with negative emotions associated with past events (Blagov, & Singer, 2004).

Future research

This study conducted an initial investigation into self-defining memories in bipolar disorder and has highlighted several directions for future research. To extend the research examining the effect of mood on self-defining memories, future studies might examine self-defining memories over a longer period of time using natural variations in mood.

The memory narratives collected in this research were extremely rich in terms of detail which it can be difficult to portray using the coding scheme devised for this study. It is suggested that coding systems should be developed further to capture some of these additional details. For example, categories that may have particular clinical relevance could be refined further such as the theme of 'disrupted sense of self' which appears an important part of self-definition for this population. As discussed previously, 'acting out of character' could be adaptive, or maladaptive, and potentially indicate mood change.

It would be interesting to develop a coding system that was able to reflect these differences.

Another way of developing the coding system would be to explore any features of adapting to, and finding benefit from, negative life events (McAdams, 2001). Several self-defining memories collected in this study from participants with bipolar disorder made reference to experiences of mental illness or other adverse life events yet, conveyed a determination not to see only the negative. This links to the notion of meaning making in self-defining memories (Singer et al., 2007) which has not been explored in this study, it would be interesting to review the degree of insight and lesson learning that occurs in the self-defining memories of individuals with bipolar disorder in comparison to the general population, and to what degree meaning making is related to their experiences of bipolar disorder.

It is clear that there are many ways that the exploration of personal narratives, such as self-defining memories, could be useful in terms of furthering the understanding of the effect that bipolar disorder may have on one's sense of self. However, it is important to bear in mind the heterogeneity of this group and as one participant with bipolar disorder said upon completion of the study, "*although having bipolar has been a big part of my life, it doesn't [wholly] define who I am*".

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Table 1. Demographic characteristics and clinical features of the sample.

Variable	Bipolar group (N=28)	Control group (N=28)
Mean (SD) age in years	46.79 (10.04)	42.25 (11.84)
Sex (male%)	42.86% (12/28)	35.71% (10/28)
% attaining A-Level stage (equivalent to high school diploma) or above	78.57% (22/28)	89.29% (25/28)
% employed	50% (14/28)	71.43%(20/28)
% married	39.29% (11/28)	42.86% (12/28)
Mean (SD)BDI score	6.68 (4.85)	4.39 (4.85)
Mean (SD)MRS score	0.43 (0.92)	0.68 (1.12)
Mean (SD) age at first depressive episode	25.82 (10.17)	-
Mean (SD) age at first manic episode	28.39 (10.21)	-
Mean no. (SD) previous depressive episodes	9 (16.59)	-
Mean no. (SD) previous manic episodes	7.96 (16.60)	-
Mean no. (SD) of previous hospital admissions for depression	1.64 (3.05)	-
Mean no. (SD) of previous hospital admissions for mania	1.46 (1.50)	-

*$p < .05$

Table 2. Means (and standard deviations) for VAS ratings testing the efficacy of mood induction procedures.

	Positive		Negative	
	Bipolar	Control	Bipolar	Control
VAS pre mood induction procedure	54.00 (16.61)	64.36 (9.73)	62.00 (16.77)	69.29 (12.28)
VAS post mood induction procedure	70.85 (17.19)	72.42 (9.25)	40.20 (15.98)	44.36 (17.47)
VAS immediately before re-rating SDM	60.23 (16.38)	64.21 (9.97)	53.06 (10.98)	61.14 (13.33)

Table 3. Kappa coefficients for inter-rater reliability for themes

Theme	Kappa Coefficient (Standard Error)
Life Threatening Events	0.97 (0.08)
Self being violated or abused	0.85 (0.05)
Undisrupted relationships	0.98 (0.10)
Disrupted relationships	0.98 (0.10)
Achievement, mastery and goal attainment	0.98 (0.10)
Guilt/ Shame	0.97 (0.09)
Disrupted sense of self	0.95 (0.07)
Failure and lack of self-efficacy	0.98 (0.08)
Mental Illness	0.97 (0.05)

Table 4. Means (and standard deviations) for ratings of thematic content for memories recalled while at a 'usual' level of mood.

Theme	Bipolar (N= 28)	Control (N=28)
Life threatening events	2.22 (0.93)	1.65 (0.83)
Self being violated	1.53 (0.75)	1.14 (0.28)
Undisrupted Relationships	2.72 (0.74)	3.27 (1.09)
Disrupted Relationships	2.74 (1.10)	2.45 (0.98)
Achievement	2.54 (1.07)	3.03 (1.03)
Guilt	2.17 (1.19)	1.61 (0.61)
Disrupted Sense of Self*	1.97 (0.75)	1.40 (0.40)
Failure	2.08 (0.60)	1.83 (0.73)
Mental Illness**	2.08 (1.00)	1.04 (0.19)

Main effect of group: *<0.006

**<0.001

Table 5. Means (and standard deviations) for the differences in thematic ratings of memories recalled at 'usual' mood and immediately following mood induction for both bipolar and control participants.

	Positive		Negative	
Theme	Bipolar (N=13)	Control (N=14)	Bipolar (N=15)	Control (N=14)
Life-threatening events	-0.37 (1.57)	0.57 (1.25)	0.38 (1.07)	0.13 (0.82)
Self being violated*	-0.73 (0.90)	-0.07 (0.37)	0.12 (0.60)	0.20 (0.50)
Undisrupted Relationships*	0.62 (1.21)	0.77 (1.27)	-0.32 (0.75)	-0.18 (1.22)
Disrupted Relationships	0.15 (1.22)	-0.93 (0.98)	0.32 (0.90)	0.21 (1.13)
Achievement	0.69 (1.35)	0.52 (1.23)	-0.17 (1.42)	0.36 (1.22)
Guilt	0.48 (1.69)	-0.18 (0.81)	0.53 (1.43)	0.39 (0.64)
Disrupted Sense of Self	-0.02 (1.17)	-0.20 (0.44)	0.67 (1.36)	-0.02 (0.61)
Failure^{+}	0.54 (1.05)	-0.46 (0.92)	0.68 (0.86)	0.13 (0.88)
Mental Illness^{++}	0.65 (1.09)	0.00 (0.00)	0.77 (1.29)	-0.02 (0.35)

(minus sign indicates lower mean rating during mood induction)

Main effect of mood condition: *<0.006 **<0.001 Main effect of group: $^{+}$<0.006 $^{++}$<0.001

Table 6. Means (and standard deviations) for self-defining memory ratings across three time points.

Rating Scale	Positive Mood						Negative Mood					
	Bipolar (N=13)			Control (N=14)			Bipolar (N=15)			Control (N=14)		
	Usual mood	Mood induction	Post mood induction	Usual mood	Mood induction	Post mood induction	Usual mood	Mood induction condition	Post mood induction	Usual mood	Mood induction	Post mood induction
Positive Affect*	2.71 (1.16)	3.29 (0.86)	2.90 (0.92)	3.27 (1.01)	3.49 (0.87)	3.32 (0.83)	4.04 (1.27)	3.22 (1.50)	3.23 (1.59)	3.75 (0.63)	3.29 (0.95)	3.24 (0.90)
Negative Affect	2.29 (0.91)	1.79 (1.36)	1.82 (1.50)	1.30 (0.93)	1.04 (0.94)	0.93 (0.87)	1.45 (0.74)	1.61 (0.94)	1.35 (0.95)	0.97 (0.77)	0.96 (0.73)	0.78 (0.67)
SHPS*	2.45 (1.16)	2.95 (0.95)	2.84 (0.92)	3.09 (0.86)	3.14 (1.10)	2.88 (1.07)	3.61 (1.04)	3.02 (1.32)	2.99 (1.53)	3.82 (0.62)	3.54 (1.15)	3.55 (1.07)
Vividness	5.13 (0.75)	5.00 (0.86)	4.87 (0.92)	4.79 (0.84)	4.63 (0.96)	4.77 (0.87)	4.78 (0.91)	4.70 (0.81)	4.73 (0.88)	4.88 (0.82)	4.88 (0.89)	4.86 (0.85)
Importance	5.19 (0.72)	5.00 (0.74)	4.98 (0.94)	4.63 (0.94)	4.71 (0.79)	4.82 (0.85)	4.88 (0.82)	4.38 (1.27)	4.50 (1.11)	4.96 (0.59)	4.64 (0.70)	4.63 (0.82)

Mood condition x time interaction:

*<0.05

**<0.01

PART THREE:

Appendices

Appendix 1

Reflective Statement

In the process of exploring the self-defining memories of the people that participated in my study, I have increasingly begun to reflect upon what my own self-defining memories are. At present, it feels like many events that have occurred during the research process, could be categorised as events that I feel in some way explain something about my sense of self and identity. However, as Singer (2005) points out, memories less than one year old can appear more significant than they may actually be in terms of longer term self-definition, so in the future, I expect I will be able to reflect on these experiences more objectively, and see the longer lasting lessons and insights that I feel I will have gained from this process.

Initially I had hoped to take a very different direction for my research as I have a longstanding interest in neuropsychology, however for various reasons I approached Dominic to discuss the possibility of conducting research in the area of bipolar disorder. My initial thoughts were focused on the cognitive deficits that have been observed in individuals with bipolar disorder, but through conversations in supervision, Dominic and I came to consider how these observed disturbances in autobiographical memory may have implications for sense of self. I had never imagined that I would undertake a research project so heavily embedded in personality and identity, but I soon found myself fascinated by the literature, and thoroughly engaged with the idea of our identity being intrinsically related to our personal narratives, indeed the '*stories of our lives*' (Adler, 1931).

Initially, things appeared to be going well, I felt organised and in control of how my research was progressing. Positive feedback from the peer review process, and getting through ethics with ease early last year, meant that I felt things were very much on track. However, this taught me a valuable lesson, to expect the unexpected. I soon realised that

my goal of completing data collection by January 2009, was unrealistic, not only for the clinical participants, but also finding an age-matched control group. This clearly had a knock-on effect to other aspects of research such as data analysis and writing-up. From this I have learnt that it is far better to plan simple and achievable goals when managing a project, although an ambitious endpoint is fine, I can see how breaking it down, step by step, much as we would do in therapy, is the way to feel that you are progressing towards that final goal.

Recruiting participants was far harder than I had imagined at the outset of this study. It was frustrating that many mental health teams had little time to even consider the prospect of being involved in the project. Some of these difficult experiences over the summer of the second year of training taught me some valuable lessons in dealing with services, and how I could have better responded to such dilemmas. I also found myself reflecting upon some of the organisational issues that were presenting obstacles to recruitment. Looking back, it would have been advisable to have contacted community teams over the summer of first year in order to establish which teams might be willing to pass details onto their patients, before completing my research proposal. The difficulty with this is many of the teams would not be willing to consider becoming involved until the study had ethical approval, however in order to obtain ethical approval it was necessary to state sources for recruitment. For me, this dilemma really highlights the importance of building longstanding relationships between researchers and other agencies/ services that may be involved.

Many hours were spent attending community team meetings which, if I was lucky, may have led to one participant. It became apparent that other avenues of recruitment must be explored. Dominic arranged for myself and another trainee, to present our research at the local Manic Depressive Fellowship Group, several people signed up to take part on the

day. This inspired us to contact groups in other towns, meeting the members was not only valuable in terms of recruitment, but was inspiring to see the support that groups gave to each other, and it was interesting hear the group members speak about their experiences of bipolar disorder in a less formal setting than when taking part in the research. Again, with hindsight, additional sources for participants really should have been considered in more detail when putting together the research proposal. A valuable lesson that I have learnt over the past 18 months is that even if an expected number of participants are estimated to come from a particular source (in this case list of volunteers, mental health teams), be prepared that in reality this is not likely to happen!

In terms of the control group, friends and family would offer to take part, this was tempting, but I had to consider the ethical and practical considerations of this. It did not seem to be appropriate due to the nature of my task which involves sharing deeply personal information; not only does this feel uncomfortable from an ethical viewpoint, it is likely it would also have affected the validity of my findings, as people may have not been as open. Eventually, I came up with a plan of asking people I knew, and the few controls I had managed to recruit to ask anyone they knew that might be interested. So, rather like a pyramid-business scheme, I was able to recruit my entire control group, from backgrounds as diverse as the clinical participants.

A particular ethical issue that arose when seeing the control group regarded the diagnostic interview. It became apparent that two of the control group met criteria for history of depression. The first time I felt awkward having to deal with this scenario, and I sensitively told the lady that she unfortunately didn’t meet the inclusion criteria for the study. On the other occasion, the participant, while answering questions as part of the diagnostic, suddenly commented that actually, in answering the questions she realised she probably had been depressed.

The distinction between being a researcher, and a therapist was one challenge that I struggled with most at the beginning of data collection. Although, I could still be empathic, and warm, conducting the diagnostic interview felt quite alien as I had to resist the urge to ask more therapeutic question, or be reflective about people's experiences. For the first participant I couldn't resist, and the interview took an hour, and we still had to do the actual experiment. Quickly, I had to learn, and practice, truly making that distinction between a research diagnostic interview, and a psychology assessment.

A related issue regards the actual times that participants were recalling their personal memories. Strong emotions were clearly evoked, again, it felt strange not to ask further comments, or offer any reflections, in situations where normally, in a therapy session, that would be appropriate. However, in these instances it may have affected the findings if I had said anything at all, rather than just let the participant, tell their narrative. However, a strength of how I conducted the study was to always ensure there was an adequate amount of time at the end of the experiment in case a participant needed some time to reflect on the process of taking part, or discuss anything that was particularly distressing.

One of the most positive aspects of this study, and the research process in general, was the interest that Professor Singer took in the project. He kindly offered to help code memories for inter-rater reliability, recommended reading and has answered any questions I have had about his previous research, as well as more generally discussing this area of research. I not only found this a validating experience, that the expert in the field found this project interesting and worthwhile, but learnt more about the processes of consulting expert opinions and knowledge, which is something I will most certainly endeavour to do in any future research I may undertake.

Journal Selection

With regards to the choice of journals, I have chosen to submit my literature review to the Journal of Research in Personality and my empirical paper to the Journal of Abnormal Psychology. I selected the Journal of Research in Personality for the literature review for several reasons. Firstly, this journal accepts reviews as well as empirical studies. Secondly, on the surface it appears this would be an appropriate journal for submitting a review that considers papers about personality, self and identity. Thirdly, several of the papers contained in the review have previously been published by this journal. The author guidelines did not specify a word limit for articles submitted to this journal, and correspondence with the editorial assistant did not provide any further guidance on this issue. Initially, when presenting the synopsis of the review paper to my peers, there were concerns that the scope was too narrow. As it turned out, the literature in this area, although limited in quantity, was vast in breadth. To incorporate the wealth of information in the included studies into the final review in a systematic way took several attempts at redrafting. However, I found great benefit in this process as it encouraged me to consider, and group papers together in alternative ways.

The Journal of Abnormal Psychology was selected for the empirical paper for a number of reasons. Firstly, it is a major peer-reviewed journal. Secondly, the author guidelines states that the journal's interests include studies of patient populations (which the present study is), and also one of the foci of published work in the Journal of Abnormal Psychology is looking at "normal processes in abnormal individuals" which the current study does.

The last few weeks

Of late, I have realised the scale of this project was large, in terms having a complex design, but also, the volume of data entry that was necessary, and the requirement to transcribe, and code, many days worth of memories. Combined, these factors have meant

that it was difficult to keep to my planned timings. In future research projects that I would hope to be involved with (at least once the dust has settled from this one) there are several things I would do differently from the start. As mentioned previously, plan more, but smaller goals. Secondly, I would ensure multiple avenues of recruitment are explored in the early stages of designing the study in order to avoid hold-ups in the proceedings. Thirdly, I think there were periods when I was so engrossed in data collection that I lost track of the end product. With hindsight, I would have revisited the background literature more frequently in order to have had a more balanced journey through the research process.

So to end where I began, at present I feel that the research process has taught me some valuable lessons about myself, I have made mistakes, and misjudged situations. However, in all, this has been an extremely most valuable experience. Yes, it has been hard and exhausting, but the idea of finding a reality from theory, and applying that to clinical practice, is something that still excites me. Moreover, I have felt privileged, and humbled at the many stories that people were willing to share with me.

Appendix 2

Journal of Research in Personality- Author guidelines

(Please note, email correspondence with indicated there were no specified word limits for articles)

Taken from:
http://www.elsevier.com/wps/find/journaldescription.cws_home/622897/authorinstructions

http://ees.elsevier.com/yjrpe

The Journal of Research in Personality (JRP) publishes both theoretical and empirical work in the traditional areas of personality (including both trait and dynamic process-oriented approaches) and in related areas central to the study of personality. These areas include, but are not limited to, genetic, physiological, motivational, cognitive, cross-cultural, developmental, and social processes relevant to understanding both normal and pathological aspects of personality. *JRP* publishes integrated series of studies addressing important theoretical or conceptual issues, as well as theoretical and methodological review articles that have the potential to advance the field. Finally, *JRP* solicits, in a brief report format, theoretically grounded, well-executed replication and null result studies. Such studies-though often difficult to publish-play a crucial role in building a cumulative knowledge base within any discipline and in fostering valid generalized casual inferences, especially through meta-analysis.
Alongside the traditional multistudy packages, *JRP* encourages single well-done studies that test a new idea, present a new twist on an old idea, or challenge existing ideas. Although such studies often raise more questions than they answer, these questions can play a crucial role in stimulating new lines of research. In addition to encouraging substantively and theoretically novel papers, *JRP* encourages submissions that use strong and innovative methodologies, such as longitudinal studies, diary studies, experiments, or quasi-experiments, as well as those that use non-self-report data (e.g., other reports, implicit methods, narratives). To broaden the base of published research, *JRP* further encourages studies that include non-college students as participants. Although cross-sectional, self-report studies conducted among college students can make important contributions to the literature, the field as a whole would nevertheless benefit from a broader empirical base. In short, *JRP* seeks to continue its tradition of publishing top tier, traditional personality research, while establishing a lively forum in which well-done studies of a slightly riskier nature will find a comfortable home.

Brief Reports. The *Journal of Research in Personality* accepts brief reports of empirical studies. This forum is intended primarily for publishing soundly designed studies of specialized interest or limited importance that cannot be accepted as regular articles, or replication or null result studies of previously published findings. An author who submits a Brief Report must agree not to submit a full report based on the same data to another journal.

Streamlined Review Policy

Peer review is widely accepted as an essential if not the essential component in the scientific publication process. Nevertheless, the peer review process can be costly for both authors and reviewers. For authors, obtaining written reviews from qualified reviewers accounts for much of the total lag in the review process (which, as we all know, can sometimes be excruciatingly long). For reviewers, preparing thoughtful and detailed reviews is enormously time-consuming and can eat into time for one's own research. To make matters worse, with the high rejection rates common among top journals, authors may have to go through multiple review processes before finding an appropriate home for their work. And as anyone who has ever gone down this road knows, resubmitting a paper to a new journal creates its own set of dilemmas. For example, to what extent should the paper be revised to address issues raised in a set of reviews with which one may not completely agree? On the other hand, failing to address issues raised in the initial set of reviews risks a negative outcome in the new review cycle, particularly when advice is sought from the same reviewer! Thus, the resubmission cycle appears to compound many of the problems associated with the peer review process.
To help address this issue, *JRP* has instituted on a trial basis a streamlined review process in which authors may submit a peer-reviewed article that was rejected by any journal published by either the **Association for Psychological Science (APS - formerly American Psychological Society)** or the **American Psychological Association (APA)**, and request an editorial decision on the basis of the prior reviews. These journals often reject papers for reasons that have little to do with quality per se-for example, they include only a single study, use unconventional methods, or are on the periphery of traditional areas of inquiry. *JRP* seeks to publish innovative, high quality research and may not be limited by these same restrictions.

Instructions for requesting a streamlined review 1. Submit the manuscript along with a cover letter. In the cover letter, the author must request a streamlined review and indicate when and where the paper was previously submitted. In addition, the author should specifically describe the nature of any changes that were made to the manuscript in response to the prior set of reviews, just as he/she would normally do when submitting a revised manuscript. Although the author is not obligated to revise the manuscript in response to the prior set of reviews, it is the rare manuscript that would not benefit from at least some revision. Thus, in most cases, it would behoove the author to carefully consider the content of the reviews and to make those changes with which the author agrees prior to requesting streamlined review.

2. Include a copy of the editor's action letter along with copies of all of the written reviews from the prior submission. These materials must be submitted in their original form; any alteration of these materials will cause the manuscript to be returned without review.

Possible decisions

1. Authors will typically be informed within 2 weeks if the submitted materials are not viewed as adequate for the purposes of making an editorial decision. Under this circumstance, the paper will be sent out for review following the normal review process. (Note that neither the prior action letter nor the reviews would be sent out to the new reviewers in this case.)

2. If the materials are deemed adequate (which is the typical outcome), an editorial decision will be rendered within 45 days, or sooner when possible.

3. The range of decisions in either case is the same as manuscripts going through the normal review process--that is, Accept (with or without minor revisions), Revise and resubmit, or Reject.

Preparation of Manuscripts

Each manuscript should be double-spaced throughout one side of 8.5 x 11-inch or A4 white paper. Authors are requested to follow the instructions given in the most recent edition of the *Publication Manual of the American Psychological Association*. Pages should be numbered consecutively.

The *Cover Page* (separate) should contain the article title, authors' names and complete affiliations, footnotes to the title, and the address for manuscript correspondence (including e-mail address and telephone and fax numbers).

The *Title Page* (p. 1) should contain the article title and footnotes to the title.

The *Abstract* (p. 2) must be concise, preferably not exceeding 100-120 words. After the Abstract, please list up to 10 keywords that will be helpful for indexing and searching.

The *Introduction* should be as concise as possible, without subheadings.

Materials and methods should be sufficiently detailed to enable the experiments to be reproduced.

Results and Discussion may be combined and may be organized with subheadings.

Acknowledgments should be brief and should precede the References.

References in the text should be cited by author's surname and the year of publication, e.g., Long (1997); Bean and Fix (1992, p. 44) (for references to a specific page); Bean Bean et al. (1996). If more than one paper was published by the same author in a given year, the correct style is Smith (1985a) and Smith (1985b). References should be listed alphabetically typed double-spaced at the end of the article. All references cited in the text must be listed at the end of the paper. Journal titles should be written out in full according to the form followed in the most recent edition of the *Publication Manual of the American Psychological Association*. Personal communications should be cited as such in the text and should not be included in the reference list. Please note the following examples.

Berry, D.S., Willingham, J.K., and Thayer, C.A. (2000). Affect and personality as predictors of conflict and closeness in young adults' friendships. *Journal of Research in Personality*, 34, 84-107.

Block, J. (1971). *Lives through time*. Berkeley, CA: Bancroft.

Rogers, T.B. (1981). A model of the self as an aspect of the human information-processing system. In N. Cantor and J. F. Kihlstrom (Eds.), *Personality, cognition, and social interaction* (pp. 193-214). Hillsdale, NJ: Erlbaum.

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Tables should be numbered consecutively with Arabic numerals in order of appearance in the text. Type each table double-spaced on a separate page with a short descriptive title typed directly above and with essential footnotes below.

Special Instructions for Preparing Brief Reports. The Brief Report should give a clear, condensed summary of the procedure of the study and as full an account of the results as space permits. Brief Reports should be no longer than 3000 words, including abstract and contain no more than 2 pages of references, using 1-inch margins (top, bottom, and sides) and a standard 12-point font, such as Times New Roman. This limit does not include the cover page, title page, author note, tables, or figures; there may be no more than two tables and/or figures. Authors should clearly indicate the word count for the manuscript on the title page and note in the cover letter that they wish the manuscript to be considered for publication as a Brief Report.

Submission of Manuscripts

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Reprints

Twenty-five (25) reprints will be provided free of charge. Additional reprints may be ordered.

Author Inquiries

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Appendix 3

Journal of Abnormal Psychology- Author Guidelines

Taken from http://www.apa.org/journals/abn/submission.html

Journal of Abnormal Psychology®

Editor: David Watson, PhD
ISSN: 0021-843x
Published Quarterly, beginning in February

Instructions to Authors

Please consult APA's Instructions for All Authors for information regarding

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- Submitting Supplemental Materials
- Abstract and Keywords
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- Permissions
- Publication Policies
- Ethical Principles

Submission

Submit manuscripts electronically (in .rtf or .doc format) via the Manuscript Submission Portal.

David Watson, PhD
Editor, *Journal of Abnormal Psychology*
Department of Psychology
The University of Iowa
Iowa City, IA 52242-1407

General correspondence may be directed to the Editor's Office.

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Keep a copy of the manuscript to guard against loss.

Masked Reviews

Masked reviews are optional and must be specifically requested in the cover letter accompanying the submission. For masked reviews, the manuscript must include a separate title page with the authors'

names and affiliations, and these ought not to appear anywhere else in the manuscript.

Footnotes that identify the authors must be typed on a separate page.

Make every effort to see that the manuscript itself contains no clues to authors' identities.

Types of Articles

Most of the articles published in the *Journal of Abnormal Psychology* are reports of original research, but other types of articles are acceptable.

- Short Reports of replications or of failures to replicate previously reported results are given serious consideration.
- Comments on articles published in the journal are also considered.
- Case studies from either a clinical setting or a laboratory will be considered if they raise or illustrate important questions that go beyond the single case and have heuristic value.
- Manuscripts that present or discuss theoretical formulations of psychopathology, or that evaluate competing theoretical formulations on the basis of published data, may also be accepted.

The *Journal of Abnormal Psychology* publishes articles on basic research and theory in the broad field of abnormal behavior, its determinants, and its correlates.

The following general topics fall within its area of major focus:

a. psychopathology - its etiology, development, symptomatology, and course
b. normal processes in abnormal individuals
c. pathological or atypical features of the behavior of normal persons
d. experimental studies, with human or animal subjects, relating to disordered emotional behavior or pathology
e. sociocultural effects on pathological processes, including the influence of gender and ethnicity
f. tests of hypotheses from psychological theories that relate to abnormal behavior

Thus, studies of patient populations, analyses of abnormal behavior and motivation in terms of modern behavior theories, case histories, and theoretical papers of scholarly substance on deviant personality and emotional abnormality would all fall within the

boundaries of the journal's interests.

Each article should represent an addition to knowledge and understanding of abnormal behavior in its etiology, description, or change.

In order to improve the use of journal resources, it has been agreed by the two Editors concerned that the *Journal of Abnormal Psychology* will not consider articles dealing with diagnosis or treatment of abnormal behavior, and the *Journal of Consulting and Clinical Psychology* will not consider articles dealing with the etiology or descriptive pathology of abnormal behavior.

Therefore, a study that focuses primarily on treatment efficacy should be submitted to the *Journal of Consulting and Clinical Psychology*. However, a longitudinal study focusing on developmental influences or origins of abnormal behavior should be submitted to the *Journal of Abnormal Psychology*.

Articles will be published in five different sections of the *Journal*: Brief Reports, Regular Articles, Extended Articles, Case Studies, and Commentaries:

- Brief Reports must not exceed 5,000 words in overall length. This limit includes all aspects of the manuscript (title page, abstract, text, references, tables, author notes and footnotes, appendices, figure captions) except figures. Brief Reports also may include a maximum of two figures. For Brief Reports, the length limits are exact and must be strictly followed.
- Regular Articles typically should not exceed 9,000 words in overall length (excluding figures).
- Extended Articles are published within regular issues of the *Journal* (they are not free-standing) and are reserved for manuscripts that require extended exposition beyond the normal length restrictions of a Regular Article. Typically, Extended Articles will report multiple experiments, multifaceted longitudinal studies, cross-disciplinary investigations, or studies that are extraordinarily complex in terms of methodology or analysis. Any submission that exceeds a total of 12,000 words in length automatically will be considered for publication as an Extended Article.
- Case Studies and Commentaries have the same length requirements as Brief Reports.

Cover Letters

Components of all cover letters will contain the following:

a. the full postal and email address of the corresponding

author;
b. the complete telephone and fax numbers of the same;
c. the proposed category under which the manuscript was submitted;
d. a request for masked review, if desired, along with a statement ensuring that the manuscript was prepared in accordance with the guidelines above.

Authors should also specify the overall length of the manuscript (in words) and indicate the number of tables and figures that are included in the manuscript.

Appendix 4

Quality Checklist Criteria	Yes (1)	No (0)	Unable to determine (0)
Reporting			
1. Is there a clear description of the theoretical framework and background literature?			
2. Is the hypothesis/ aim/ objective/ research question of the study clearly described?			
3. Do the hypotheses or questions follow from the theoretical background, and literature review?			
4. Are the main outcomes to be measured clearly described in the Introduction or Method section? *If the main outcomes are first mentioned in the Results section the answer should be no.*			
5. Are characteristics of participants included in the study clearly described?			
6. Did the report adequately describe the measures used?			
7. Are the procedures/methods clearly described?			
8. Are the distributions of principal confounders in each group of participants clearly described? E.g. gender, age, education			
9. Are the main findings of the study clearly described? *Simple outcome data reported so the reader can check main analyses and conclusions (this question does not cover statistical tests).*			
10. Have actual probability values been reported for main outcomes (e.g. 0.035 rather than <0.05) except where the probability value is less than 0.001?			
External Validity			
11. If a clinical population took part, was an appropriate, standardised screening measure used?			
Internal Validity			
12. Where suitable, was an appropriate control or comparison group used?			
13. If any of the results of the study were based on "data dredging" was this made clear? *Any analysis that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes.*			
14. Were appropriate statistical procedures employed to test the main outcomes/ hypotheses?			
15. Where appropriate, does the research describe attempts made to assess the validity and reliability of the data analysis e.g. inter-rater reliability?			
16. Were raters coding memories blind to the participant group?			
17. Were the main outcome measures used accurate? (Valid and reliable)? *For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are accurate, the question should be answered as yes.*			
18. Was there adequate adjustment for confounding in the main analyses?			
19. Were participants randomised into groups? *Studies that state participants were randomised should be answered yes except where methods of randomization would not ensure random allocation e.g. alternate allocation would score no because it is predictable. If the study did not have separate conditions to which participants could be randomly assigned score yes.*			
Power			
20. Is the power calculation reported?			
21. Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%? If the effect size was not reported, this question should be answered unable to determine.			
TOTAL SCORE			

Appendix 5: Research Governance and Ethical Approval Letters

(Removed for Hard Binding)

Appendix 6

Participant Information Sheet

*University logo and address removed

Participant Information Sheet

Self-defining memories and mood

You are being invited to take part in a research study. However, before you decide whether you would like to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

- Part 1 describes the purpose of this study and what taking part will involve.
- Part 2 provides further detail on issues such as confidentiality agreements and complaints procedures.

Please ask the researcher any questions you may have about the information provided or if there is anything else you would like to know about the study.

Part 1

What is the purpose of the study?

The purpose of the study is to investigate whether variations in a person's mood may affect their personal memories, and subsequently affect how the self is perceived. Because people with bipolar disorder experience more extreme variations in mood than the general population, this study is interested to see whether mood has a different impact on personal memories for individuals with bipolar disorder compared to a control group. Research in this area may help to contribute to our understanding of depressive and manic relapse which may assist the development of better psychological therapies.

This study is being conducted by a Trainee Clinical Psychologist as part of their training.

Why have I been chosen?

You have been chosen because you either have a history of bipolar disorder, or because you have never had a mental health problem.

We are aiming to recruit a total of 60 participants.

Do I have to take part?

No. It is up to you to decide whether or not to take part. Following reading this information sheet, if you decide to take part you will be asked to sign a consent form. You are still free to withdraw at any time and without giving a reason. In this instance, your data will be destroyed and not used in the research. If you decide not to take part, or to withdraw during the study it will not affect the standard of care that you receive.

What will I have to do if I choose to take part?

- The study will take between 1 hour 30 minutes and 2 hours to complete.
- You will be asked to fill out some questionnaires and asked some questions about any previous mental health episodes.
- You will then be asked to complete some simple tasks, e.g. thinking about and describing memories that you feel convey how you have come to be the person you currently are, and rating emotions evoked when thinking about these memories.
- You will be asked to watch some short video clips. Participants will be randomly allocated to one of two groups: one group will watch videos that are funny and the other group will watch videos that are sad. It is expected that after you have watched the video clips there will be a slight and temporary change in your mood. You will then be asked to recall some further memories. The study wants to compare if there is a difference in the types of memories recalled in different moods.
- The memories that you recall will be audio taped. This is so that the chief investigator can analyse them after the session. Recordings of memories will also be analysed by another employee of the Humber Mental Health Teaching Trust. All recordings will be anonymised.
- Once you have finished the tasks you will not be required to complete any further tasks for this research project. There will be no follow-up.

Expenses and payments

Unfortunately we are not able to offer any payments or reimburse any expenses for taking part in this research.

What are the possible disadvantages of taking part?

There are no foreseen risks involved in taking part in this study. You may however feel temporarily low in mood if assigned to the sad video clip group.

What are the possible benefits of taking part?

There is no intended clinical benefit to participants taking part in this study. However, the research being conducted may help us to understand more about personal memories and bipolar disorder, which could help improve treatment for people with bipolar disorder.

Part 2

Confidentiality

- All information about your participation in this study will be kept confidential.
- Only the chief investigator will have access to identifiable data.
- Data will be held for 5 years in a secure place before it is disposed of securely.
- The procedures for handling, storage and destruction of data are compliant with the Data Protection Act 1998.

Complaint Procedure

If you have any concerns about this study, you should contact the chief investigator who will try to answer your questions (telephone: 01482 464101). If you wish to make a formal complaint, you can do this through the NHS Complaints Procedure (Telephone: 01482 303966).

Harm

In the event that you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against Humber Mental Health Teaching NHS Trust but you may have to pay your legal costs.

What will happen to the results of this study?

Once information has been collected from participants, it is intended that the results of the study will be published in a peer-reviewed journal. You will not be identified in any report/publication.

If you have any questions that are not answered in the Information Sheet please don't hesitate to contact me by post, telephone or email.

Contact details:

University address

Telephone: **********
Email: **********

Thank you for considering taking part in this study and taking the time to read this information sheet.

Appendix 7

Consent Form

*University logo and address removed

Participation Identification Number:
Consent Form:

Consent Form

The effect of mood on self-defining memories in bipolar disorder.

Researcher: *Name of researcher*.

	Please initial box
1. I confirm that I have read and understand the information sheet dated 18.02.2008 (version I) for the above study. I have had the opportunity to consider the information, ask questions and have these answered satisfactorily.	☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	☐
3. I understand that parts of the study will be audio-taped for the purpose of analysing the information.	☐
4. If there is any doubt regarding a diagnosis of Bipolar Disorder, I agree that my medical records may be accessed by the chief investigator.	☐
5. I agree to take part in the above study.	☐

Name of Participant	Date	Signature
Name of person taking consent	Date	Signature

Appendix 8

Non-copyrighted materials

Mania Rating Scale - MRS (Bech et al. 1978)

1 Activity: Motor
0 Not unusual
1. Slight or doubtfully increased motor activity (e.g. lively facial expression).
2. Moderately increased motor activity (e.g. lively gestures).
3. Clearly excessive motor activity, on the move most of the time, rises once or several times during interview.
4. Constantly active, restlessly energetic. Even if urges, the patient cannot sit still.

2 Activity: Verbal
0. Not unusual
1. Somewhat talkative
2. Very talkative, no spontaneous intervals in the conversation.
3. Difficult to interrupt.
4. Impossible to interrupt, completely dominates the conversation.

3 Flight of Thoughts
0. Not present
1. Somewhat lively descriptions, explanations and elaborations without losing the connection with the topic of the conversation. The thoughts are thus still cohesive.
2. Again it is occasionally difficult for the patient to stick to the topic, he is distracted by random associations (often rhymes, clangs, puns, pieces of verse or music).
3. The line of thought is regularly disrupted by diversionary associations.
4. It is difficult or impossible to follow the patient's line of thought, as he constantly jumps from one topic to another.

4 Voice/Noise Level
0. Not unusual
1. Speaks somewhat loudly without being noisy
2. Voice discernible at a distance, and somewhat noisy.
3. Vociferous, voice discernible at a long distance, is noisy, singing.
4. Shouting, screaming; or using other sources of noise due to hoarseness.

5 Hostility/Destructiveness
0. No signs of impatience or hostility.
1. Somewhat impatient or irritable, but control is maintained.
2. Markedly impatient or irritable. Provocation badly tolerated.
3. Provocative, makes threats, but can be calmed down.
4. Overt physical violence; physically destructive.

6 Mood Level (Feeling of Well-Being)
0. Not unusual
1. Slightly or doubtfully elevated mood, optimistic, but still adapted to situation.

2. Moderately elevated mood, joking, laughing.
3. Markedly elevated mood, exuberant both in manner and speech.
4. Extremely elevated mood, quite irrelevant to situation.

7 Self-Esteem

0. Not unusual
1. Slightly or doubtfully increased self-esteem, for example occasionally over-estimates his own habitual capacities
2. Moderately increased self-esteem, for example, overestimates more constantly his own habitual capacities or hints at unusual abilities.
3. Markedly unrealistic ideas, for example, that he has extraordinary abilities, powers or knowledge (scientific, religious, etc.), but can briefly be corrected.
4. Grandiose ideas which cannot be corrected.

8 Contact (Intrusiveness)

0. Not unusual
1. Slightly doubtfully meddling, for example, interrupting or slightly intrusive.
2. Moderately meddling and arguing or intrusive.
3. Dominating, arranging, directing, but still in context with the setting.
4. Extremely dominating and manipulating, not in context with the setting.

9 Sleep (Average of past 3 nights)

0. Habitual duration of sleep.
1. Duration of sleep reduced by 25%
2. Duration of sleep reduced by 50%
3. Duration of sleep reduced by 75%
4. No sleep

10 Sexual Interest

0. Habitual sexual interest and activity.
1. Slight or doubtful increase in sexual interest and activity, for example, slightly flirtatious.
2. Moderate increase in sexual interest and activity, for example, clearly flirtatious.
3. Marked increase in sexual interest and activity; excessively flirtatious; dress provocative.
4. Completely and inadequately occupied by sexuality.

11 Decreased Work Ability

A At First Rating

0. Not present
1. Slightly or doubtfully increased drive, but work quality is slightly down as motivation is changing, and the patient somewhat distractible.
2. Increased drive, but motivation clearly fluctuating. The patient has difficulties in judging own work quality and the quality is indeed lowered. Frequent quarrels at work.
3. Work capacity clearly reduced; the patient occasionally loses control. He must stop work and be written off sick. If hospitalised, he can participate for some hours per day in ward activities.

4. The patient is (or ought to be) hospitalised and is unable to participate in ward activities.

B At Weekly Ratings

0. (a) The patient has resumed work at his normal activity level.
   (b) The patient would have no trouble in working, but the effort is somewhat reduced due to changeable motivation
1. (a) The patient is working, but the effort is somewhat reduced due to changeable motivation
   (b) It is doubtful whether the patient can resume normal work on a full scale due to distractibility and changeable motivation.
2. (a) The patient is working, but at a clearly reduced level, for example, due to episodes of non-attendance
   (b) The patient is still hospitalised or written off sick. He is able to resume work only if special precautions are taken: close supervision and/or reduced working hours.
3. The patient is still hospitalised or written off sick and is unable to resume work. In hospital he participates for some hours per day in ward activities.
4. The patient is still fully hospitalised and generally unable to participate in ward activities.

Bech P., Rafaelsen, O. J., Kramp, P., & Bolwig, T. G. (1978). The mania rating scale: Scale construction and inter-observer agreement. *Neuropharmacology, 17*, 430-431.

MRS - Assessment Summary Sheet

Patient Name:

Date					
1. Activity – motor					
2. Activity – verbal					
3. Flights of Idea					
4. Voice/Noise level					
5. Hostility/Destructiveness					
6. Mood level (feeling of well being)					
7. Self-esteem					
8. Contact (intrusiveness)					
9. Sleep (average of last 3 nights)					
10. Sexual interest					
11. Decreased work ability (first /weekly rating)					
Total					

MRS - Score Interpretation Guide

0 -5	No mania
6-9	Hypomania (mild)
10 -14	Probable mania
15 +	Definite mania

Self-Defining Memory Task

This part of the experiment concerns the recall of a special kind of personal memory called a self-defining memory. A self-defining memory has the following attributes:

1. It is at least **one year old**.

2. It is a memory from your life that you **remembered very clearly** and that still feels **important** to you even as you think about it.

3. It is a memory about an important enduring **theme, issue, or conflict** from your life. It is a memory that helps explain who you are as an individual and might be the memory you would tell someone else if you wanted that person to understand you in a profound way.

4. It is a memory **linked to other similar memories** that share the same theme or concern.

5. It may be a memory that is positive or negative, or both, in how it makes you feel. The only important aspect is that it **leads to strong feelings**.

6. It is a memory that you have **thought about many times**. It should be familiar to you like a picture you have studied or a song (happy or sad) you have learned by heart.

To understand best what a self-defining memory is, imagine you have just met someone you like very much and are going for a walk together. Each of you is very committed to helping the other get to know the "Real You". You are not trying to play a role or to strike a pose. While, inevitably, we say things that present a picture of ourselves that might not be completely accurate, imagine that you are making every effort to be honest. In the course of the conversation, you describe a memory that you feel conveys powerfully how you have come to be the person you currently are. It is precisely this memory, which you tell the other person and simultaneously repeat to yourself, that constitutes a self-defining memory.

Memory Rating Sheet

Please think about your self-defining memory. Using the rating scale below, please indicate **how you felt about yourself today** in recalling and thinking about your memory.

1. Confident

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

2. Dynamic

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

3. Adorable

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

4. Entertaining

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

5. Outgoing

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

6. Optimistic

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

7. Creative

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

Using the rating scale below, please now rate how you felt **today** when thinking in recalling and thinking about your memory.

8. Happy

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

9. Sad

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

10. Angry

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

11. Fearful

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

12. Surprised

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

13. Ashamed

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

14. **Disgusted**

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

15. Guilty

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

16. **Interested**

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

17. **Embarrassed**

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

18. **Contemptuous**

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

19. **Proud**

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

Please also indicate the vividness and importance of the memory and the approximate number of years ago the memory took place (to the nearest whole number). Please note that you should not put your age when the memory took place, but instead how many years ago it took place.
Using the same 0 – 6 scale, please rate how vividly you recalled the memory and how important the memory is to you.

20. Vivid

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

21. **Important**

0	1	2	3	4	5	6
Not at all			Moderately			Extremely

22. How many years ago did the memory take place?
Years Ago _____ (to the nearest whole number)

23. How would you rate your mood at the time of the event in this memory?

Extremely depressed _____ Extremely manic

PLEASE MAKE SURE YOU HAVE NOT LEFT ANY ANSWERS BLANK.
THANK YOU!

Appendix 9: Copyrighted Materials
(Removed for Hard Binding)

Appendix 10

Memory Coding Instructions

Scoring for Content

Categories described in The manual for Coding Events in Self-defining Memories (Thorne and McLean, 2001) have been adapted to score the thematic content of self-defining memories in this study. Due to the number of memories that were appeared to have multiple themes it was also decided to adapt the scoring system: rather than code for discrete categories, the rater should code each memory on whether each of the themes listed below is present. Ratings should be done on a six-point scale (1 *not at all present* to 6 *extremely present*).

1. **'Life-threatening events'**: narratives include death, serious injury or illness (to self or other), physical assault.

2. **'Self being violated/abused'**: this category includes narratives that describe feeling violated, abused or attacked following the actions of another person towards the individual reporting the memory. Narratives may report feeling disgusted in response to the actions of another person that were directed towards them; this may include events such as rape or sexual abuse.

3. **'Disrupted relationships'**: including break-ups, divorce, experiences of separation and interpersonal conflict

4. **'Undisrupted relationships'**: including first love, intimacy, reconciliation

5. **'Achievement, mastery and goal attainment'**: Achievement and mastery events emphasise either individual or group effortful attempts at accomplishment with regard to a goal attainment (physical, material, social or spiritual), skill or direction in life.

6. **'Guilt/ shame'**: These event narratives emphasise doing right or wrong. The narrative may use the word 'guilt', 'shame' or 'ashamed' or clearly convey remorse for one's actions for example, resolve to be a better person.

7. **'Disrupted sense of self'**: emphasis on not being certain of aspects of identity, reporting acting 'out of character', confusion about identity or contradictory experiences of self. For example, a narrative about acting out of character might refer to being reckless when in a manic state, having affairs, or being uncharacteristically outgoing which may have subsequent negative consequences. Narratives might contain the theme of not being certain of aspects of identity: for example, having homosexual affairs when most of the time seeing oneself as heterosexual or losing one's temper when normally very calm. Additionally,

narratives including events such as rape or abuse may refer to how the experiences have disrupted their sense of self or identity. For example, not being able to protect one's self when normally seeing themselves as strong, or feeling differently about one's self following the incident, for example feeling ashamed or dirty or no longer being able to trust others.

8. **'Failure and lack of self-efficacy'**: memory refers to feelings of failure or lack of self-efficacy. This may include the reporter describing feeling as though they are unable to cope or take control over events or aspects of their lives. For example, the participant may describe a loss of control and direction in life because of the illness or having the course of attaining planned life goals disrupted because of illness (this may be in reference to any aspect of life including career, education, relationships, ability to parent).

9. **'Mental illness'**: the memory narrative may emphasise, or make reference to a severe episode of mental illness, hospitalization or stigmatisation. As the control group are screened to ensure no history of psychiatric disorders, this theme will be looked at within the bipolar participants at baseline and across the two mood induction conditions.

Appendix 11

Further information about preliminary statistical analyses

Factor Analysis

Item loadings relating to affective response to memories (N=56).

	Negative Affect	Positive Affect
Happy	-.460	.772
Sad	.737	-.133
Angry	.810	.110
Fearful	.757	.184
Surprised	.492	.458
Ashamed	.900	-.157
Disgusted	.851	-.095
Guilty	.800	-.148
Interested	.127	.798
Embarrassed	.800	-.107
Contemptuous	.779	.072
Proud	-.098	.841

Principal component analysis with varimax rotation.

Negative Mood Induction

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
time	Sphericity Assumed	8096.874	2	4048.437	27.645	.000
	Greenhouse-Geisser	8096.874	1.505	5379.135	27.645	.000
	Huynh-Feldt	8096.874	1.634	4956.028	27.645	.000
	Lower-bound	8096.874	1.000	8096.874	27.645	.000
time * group	Sphericity Assumed	62.208	2	31.104	.212	.809
	Greenhouse-Geisser	62.208	1.505	41.327	.212	.746
	Huynh-Feldt	62.208	1.634	38.077	.212	.765
	Lower-bound	62.208	1.000	62.208	.212	.649
Error(time)	Sphericity Assumed	7908.022	54	146.445		
	Greenhouse-Geisser	7908.022	40.641	194.580		
	Huynh-Feldt	7908.022	44.111	179.275		
	Lower-bound	7908.022	27.000	292.890		

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Level 1 vs. Level 2	15811.982	1	15811.982	34.830	.000
	Level 2 vs. Level 3	6367.082	1	6367.082	25.126	.000
time * group	Level 1 vs. Level 2	70.878	1	70.878	.156	.696
	Level 2 vs. Level 3	111.220	1	111.220	.439	.513
Error(time)	Level 1 vs. Level 2	12257.329	27	453.975		
	Level 2 vs. Level 3	6842.090	27	253.411		

Positive Mood Induction

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
time	Sphericity Assumed	2275.011	2	1137.506	10.775	.000
	Greenhouse-Geisser	2275.011	1.633	1393.457	10.775	.000
	Huynh-Feldt	2275.011	1.801	1263.295	10.775	.000
	Lower-bound	2275.011	1.000	2275.011	10.775	.003
time * group	Sphericity Assumed	277.234	2	138.617	1.313	.278
	Greenhouse-Geisser	277.234	1.633	169.807	1.313	.276
	Huynh-Feldt	277.234	1.801	153.946	1.313	.277
	Lower-bound	277.234	1.000	277.234	1.313	.263
Error(time)	Sphericity Assumed	5278.692	50	105.574		
	Greenhouse-Geisser	5278.692	40.816	129.329		
	Huynh-Feldt	5278.692	45.021	117.249		
	Lower-bound	5278.692	25.000	211.148		

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.
time	Level 1 vs. Level 2	4185.231	1	4185.231	21.281	.000
	Level 2 vs. Level 3	2389.973	1	2389.973	7.856	.010
time * group	Level 1 vs. Level 2	519.009	1	519.009	2.639	.117
	Level 2 vs. Level 3	38.862	1	38.862	.128	.724
Error(time)	Level 1 vs. Level 2	4916.621	25	196.665		
	Level 2 vs. Level 3	7605.434	25	304.217		

Appendix 12: Further information about the main statistical analyses

Means (and standard deviations) for ratings of thematic content (N=56).

	Positive Mood						Negative Mood					
	Bipolar (N=13)			Control (N=14)			Bipolar (N=15)			Control (N=14)		
	Usual mood	Mood Induction	Difference	Usual mood	Mood Induction	Difference	Usual mood	Mood Induction	Difference	Usual mood	Mood Induction	Difference
LTE	2.48 (1.06)	2.12 (0.85)	-0.37 (1.57)	1.79 (1.04)	2.36 (1.09)	0.57 (1.25)	2.00 (0.76)	2.38 (1.03)	0.38 (1.07)	1.52 (0.58)	1.64 (0.63)	0.13 (0.82)
Violated/ abused	1.90 (0.92)	1.17 (0.21)	-0.73 (0.90)	1.23 (0.36)	1.16 (0.32)	-0.07 (0.37)	1.20 (0.32)	1.32 (0.55)	0.12 (0.60)	1.05 (0.14)	1.25 (0.45)	0.20 (0.50)
Relationships	2.58 (0.62)	3.19 (1.07)	0.62 (1.21)	3.04 (1.18)	3.80 (0.90)	0.77 (1.27)	2.85 (0.83)	2.53 (0.85)	-0.32 (0.75)	3.50 (0.97)	3.32 (0.86)	-0.18 (1.22)
Disrupted relationships	2.96 (0.67)	3.12 (1.18)	0.15 (1.22)	2.86 (1.05)	1.93 (0.76)	-0.93 (0.98)	2.55 (1.36)	2.87 (1.25)	0.32 (0.90)	2.04 (0.72)	2.25 (0.74)	0.21 (1.13)
Achievement	2.06 (0.69)	2.75 (0.97)	0.69 (1.35)	3.02 (0.89)	3.54 (0.82)	0.52 (1.23)	2.95 (1.18)	2.78 (0.92)	-0.17 (1.42)	3.04 (1.20)	3.39 (0.95)	0.36 (1.22)
Guilt	2.29 (1.32)	2.77 (1.36)	0.48 (1.69)	1.79 (0.69)	1.61 (0.40)	-0.18 (0.81)	2.07 (1.10)	2.60 (1.33)	0.53 (1.43)	1.43 (0.46)	1.82 (0.77)	0.39 (0.64)
Disrupted sense of self	2.35 (0.77)	2.33 (1.00)	-0.02 (1.17)	1.36 (0.37)	1.16 (0.23)	-0.20 (0.44)	1.65 (0.58)	2.32 (1.31)	0.67 (1.36)	1.45 (0.44)	1.43 (0.56)	-0.02 (0.61)
Failure	2.40 (0.55)	2.94 (1.18)	0.54 (1.05)	1.91 (0.79)	1.45 (0.57)	-0.46 (0.92)	1.80 (0.50)	2.48 (1.01)	0.68 (0.86)	1.75 (0.70)	1.87 (0.94)	0.13 (0.88)
Mental Illness	2.33 (1.12)	2.98 (1.46)	0.65 (1.09)	1.00 (0.00)	1.00 (0.00)	0.00 (0.00)	1.87 (0.89)	2.63 (1.41)	0.77 (1.29)	1.07 (0.27)	1.05 (0.20)	-0.02 (0.35)

Analyses relating to theme (baseline mood condition group comparisons)

Tests of Between-Subjects Effects

Dependent Variable:Disrupted sense of self

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.224[a]	3	1.741	4.814	.005
Intercept	160.077	1	160.077	442.587	.000
VAR00001	.440	1	.440	1.215	.275
Group	4.733	1	4.733	13.086	.001
VAR00001 * Group	.214	1	.214	.592	.445
Error	18.808	52	.362		
Total	183.500	56			
Corrected Total	24.031	55			

a. R Squared = .217 (Adjusted R Squared = .172)

Tests of Between-Subjects Effects

Dependent Variable:Mental Illness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	18.164[a]	3	6.055	12.366	.000
Intercept	137.587	1	137.587	281.010	.000
VAR00001	1.766	1	1.766	3.606	.063
Group	15.913	1	15.913	32.500	.000
VAR00001 * Group	1.128	1	1.128	2.303	.135
Error	25.460	52	.490		
Total	179.562	56			
Corrected Total	43.624	55			

a. R Squared = .416 (Adjusted R Squared = .383)

Tests of Between-Subjects Effects

Dependent Variable:Life Threatening Events

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.202[a]	3	2.067	2.666	.057
Intercept	209.597	1	209.597	270.251	.000
VAR00001	.887	1	.887	1.143	.290
Group	4.547	1	4.547	5.863	.019
VAR00001 * Group	.740	1	.740	.954	.333
Error	40.329	52	.776		
Total	256.750	56			
Corrected Total	46.531	55			

a. R Squared = .133 (Adjusted R Squared = .083)

Tests of Between-Subjects Effects

Dependent Variable:Violated

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.460[a]	3	.820	2.534	.067
Intercept	99.103	1	99.103	306.300	.000
VAR00001	.002	1	.002	.005	.946
Group	1.998	1	1.998	6.176	.016
VAR00001 * Group	.395	1	.395	1.220	.274
Error	16.825	52	.324		
Total	119.062	56			
Corrected Total	19.285	55			

a. R Squared = .128 (Adjusted R Squared = .077)

Tests of Between-Subjects Effects

Dependent Variable:Relationships

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.703[a]	3	2.568	3.106	.034
Intercept	503.448	1	503.448	609.050	.000
VAR00001	.191	1	.191	.231	.633
Group	3.942	1	3.942	4.769	.034
VAR00001 * Group	3.354	1	3.354	4.058	.049
Error	42.984	52	.827		
Total	553.188	56			
Corrected Total	50.686	55			

a. R Squared = .152 (Adjusted R Squared = .103)

Tests of Between-Subjects Effects

Dependent Variable:Disrupted Relationships

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.435[a]	3	1.812	1.744	.169
Intercept	373.824	1	373.824	359.909	.000
VAR00001	.315	1	.315	.303	.584
Group	1.104	1	1.104	1.063	.307
VAR00001 * Group	3.899	1	3.899	3.754	.058
Error	54.011	52	1.039		
Total	436.188	56			
Corrected Total	59.445	55			

a. R Squared = .091 (Adjusted R Squared = .039)

Tests of Between-Subjects Effects

Dependent Variable:Achievement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.077[a]	3	1.692	1.519	.221
Intercept	431.503	1	431.503	387.324	.000
VAR00001	1.194	1	1.194	1.071	.305
Group	3.418	1	3.418	3.068	.086
VAR00001 * Group	.503	1	.503	.451	.505
Error	57.931	52	1.114		
Total	496.188	56			
Corrected Total	63.008	55			

a. R Squared = .081 (Adjusted R Squared = .028)

Tests of Between-Subjects Effects

Dependent Variable:Guilt

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.667[a]	3	1.556	1.691	.180
Intercept	199.752	1	199.752	217.198	.000
VAR00001	.231	1	.231	.251	.618
Group	4.503	1	4.503	4.896	.031
VAR00001 * Group	.006	1	.006	.007	.934
Error	47.823	52	.920		
Total	252.188	56			
Corrected Total	52.490	55			

a. R Squared = .089 (Adjusted R Squared = .036)

Tests of Between-Subjects Effects

Dependent Variable:Failure

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.961[a]	3	.320	.689	.563
Intercept	213.819	1	213.819	459.868	.000
VAR00001	.084	1	.084	.180	.673
Group	.889	1	.889	1.912	.173
VAR00001 * Group	.002	1	.002	.004	.948
Error	24.178	52	.465		
Total	239.250	56			
Corrected Total	25.138	55			

a. R Squared = .038 (Adjusted R Squared = -.017)

Analyses relating to theme: effect of mood induction

Tests of Between-Subjects Effects

Dependent Variable:Relationships

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	16.945[a]	7	2.421	1.891	.092	.216
Intercept	2.571	1	2.571	2.009	.163	.040
VAR00001	.001	1	.001	.001	.980	.000
mood_condition	11.750	1	11.750	9.180	.004	.161
Group	.355	1	.355	.277	.601	.006
VAR00001 * mood_condition	.355	1	.355	.277	.601	.006
VAR00001 * Group	1.878	1	1.878	1.467	.232	.030
mood_condition * Group	.011	1	.011	.008	.927	.000
VAR00001 * mood_condition * Group	2.137	1	2.137	1.670	.202	.034
Error	61.443	48	1.280			
Total	80.750	56				
Corrected Total	78.388	55				

a. R Squared = .216 (Adjusted R Squared = .102)

Dependent Variable:Violated

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	7.696[a]	7	1.099	2.754	.017	.287
Intercept	.870	1	.870	2.181	.146	.043
VAR00001	.444	1	.444	1.113	.297	.023
mood_condition	4.268	1	4.268	10.692	.002	.182
Group	1.959	1	1.959	4.906	.032	.093
VAR00001 * mood_condition	.040	1	.040	.100	.753	.002
VAR00001 * Group	.004	1	.004	.011	.916	.000
mood_condition * Group	1.137	1	1.137	2.848	.098	.056
VAR00001 * mood_condition * Group	.071	1	.071	.178	.675	.004
Error	19.161	48	.399			
Total	27.500	56				

Tests of Between-Subjects Effects

Dependent Variable:Relationships

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	16.945[a]	7	2.421	1.891	.092	.216
Intercept	2.571	1	2.571	2.009	.163	.040
VAR00001	.001	1	.001	.001	.980	.000
mood_condition	11.750	1	11.750	9.180	.004	.161
Group	.355	1	.355	.277	.601	.006
VAR00001 * mood_condition	.355	1	.355	.277	.601	.006
VAR00001 * Group	1.878	1	1.878	1.467	.232	.030
mood_condition * Group	.011	1	.011	.008	.927	.000
VAR00001 * mood_condition * Group	2.137	1	2.137	1.670	.202	.034
Error	61.443	48	1.280			
Total	80.750	56				
Corrected Total	26.857	55				

a. R Squared = .287 (Adjusted R Squared = .183)

Dependent Variable:Disrupted relationships

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	20.330[a]	7	2.904	2.666	.021	.280
Intercept	.139	1	.139	.128	.722	.003
VAR00001	.007	1	.007	.006	.938	.000
mood_condition	5.829	1	5.829	5.351	.025	.100
Group	5.254	1	5.254	4.823	.033	.091
VAR00001 * mood_condition	.094	1	.094	.086	.770	.002
VAR00001 * Group	5.369	1	5.369	4.928	.031	.093
mood_condition * Group	3.425	1	3.425	3.144	.083	.061
VAR00001 * mood_condition * Group	.577	1	.577	.529	.470	.011
Error	52.294	48	1.089			
Total	72.812	56				
Corrected Total	72.624	55				

a. R Squared = .280 (Adjusted R Squared = .175)

Dependent Variable:Life Threatening Events

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12.554[a]	7	1.793	1.244	.298	.154
Intercept	1.740	1	1.740	1.207	.277	.025
VAR00001	1.215	1	1.215	.843	.363	.017
mood_condition	.247	1	.247	.171	.681	.004
Group	1.639	1	1.639	1.137	.292	.023
VAR00001 * mood_condition	1.406	1	1.406	.975	.328	.020
VAR00001 * Group	2.657	1	2.657	1.843	.181	.037
mood_condition * Group	4.679	1	4.679	3.246	.078	.063
VAR00001 * mood_condition * Group	.517	1	.517	.359	.552	.007
Error	69.195	48	1.442			
Total	83.812	56				
Corrected Total	81.749	55				

a. R Squared = .154 (Adjusted R Squared = .030)

Dependent Variable:Guilt

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	7.432[a]	7	1.062	.687	.682	.091
Intercept	5.408	1	5.408	3.499	.068	.068
VAR00001	.034	1	.034	.022	.883	.000
mood_condition	1.170	1	1.170	.757	.389	.016
Group	2.328	1	2.328	1.506	.226	.030
VAR00001 * mood_condition	.858	1	.858	.555	.460	.011
VAR00001 * Group	.342	1	.342	.221	.640	.005
mood_condition * Group	1.105	1	1.105	.715	.402	.015
VAR00001 * mood_condition * Group	1.758	1	1.758	1.137	.292	.023
Error	74.192	48	1.546			
Total	86.938	56				
Corrected Total	81.624	55				

Dependent Variable:Guilt

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	7.432[a]	7	1.062	.687	.682	.091
Intercept	5.408	1	5.408	3.499	.068	.068
VAR00001	.034	1	.034	.022	.883	.000
mood_condition	1.170	1	1.170	.757	.389	.016
Group	2.328	1	2.328	1.506	.226	.030
VAR00001 * mood_condition	.858	1	.858	.555	.460	.011
VAR00001 * Group	.342	1	.342	.221	.640	.005
mood_condition * Group	1.105	1	1.105	.715	.402	.015
VAR00001 * mood_condition * Group	1.758	1	1.758	1.137	.292	.023
Error	74.192	48	1.546			
Total	86.938	56				

a. R Squared = .091 (Adjusted R Squared = -.041)

Dependent Variable:Disrupted sense of self

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	7.097[a]	7	1.014	.993	.448	.126
Intercept	.628	1	.628	.615	.437	.013
VAR00001	.013	1	.013	.013	.910	.000
mood_condition	2.501	1	2.501	2.448	.124	.049
Group	2.536	1	2.536	2.483	.122	.049
VAR00001 * mood_condition	.067	1	.067	.066	.798	.001
VAR00001 * Group	.146	1	.146	.143	.707	.003
mood_condition * Group	.837	1	.837	.820	.370	.017
VAR00001 * mood_condition * Group	.435	1	.435	.426	.517	.009
Error	49.026	48	1.021			
Total	56.938	56				
Corrected Total	56.124	55				

a. R Squared = .126 (Adjusted R Squared = -.001)

Dependent Variable:Failure

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	15.349[a]	7	2.193	2.599	.023	.275
Intercept	2.916	1	2.916	3.457	.069	.067
VAR00001	.009	1	.009	.011	.916	.000
mood_condition	1.624	1	1.624	1.925	.172	.039
Group	8.712	1	8.712	10.327	.002	.177
VAR00001 * mood_condition	.785	1	.785	.930	.340	.019
VAR00001 * Group	1.754	1	1.754	2.079	.156	.042
mood_condition * Group	.814	1	.814	.965	.331	.020
VAR00001 * mood_condition * Group	1.889	1	1.889	2.239	.141	.045
Error	40.497	48	.844			
Total	58.674	56				
Corrected Total	55.846	55				

a. R Squared = .275 (Adjusted R Squared = .169)

Dependent Variable:Mental illness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9.182[a]	7	1.312	1.683	.136	.197
Intercept	7.195	1	7.195	9.230	.004	.161
VAR00001	.780	1	.780	1.000	.322	.020
mood_condition	.034	1	.034	.043	.836	.001
Group	7.557	1	7.557	9.695	.003	.168
VAR00001 * mood_condition	.014	1	.014	.017	.895	.000
VAR00001 * Group	.902	1	.902	1.157	.287	.024
mood_condition * Group	.062	1	.062	.080	.778	.002
VAR00001 * mood_condition * Group	.034	1	.034	.043	.836	.001
Error	37.415	48	.779			
Total	53.562	56				

Dependent Variable:Mental illness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9.182[a]	7	1.312	1.683	.136	.197
Intercept	7.195	1	7.195	9.230	.004	.161
VAR00001	.780	1	.780	1.000	.322	.020
mood_condition	.034	1	.034	.043	.836	.001
Group	7.557	1	7.557	9.695	.003	.168
VAR00001 * mood_condition	.014	1	.014	.017	.895	.000
VAR00001 * Group	.902	1	.902	1.157	.287	.024
mood_condition * Group	.062	1	.062	.080	.778	.002
VAR00001 * mood_condition * Group	.034	1	.034	.043	.836	.001
Error	37.415	48	.779			
Total	53.562	56				
Corrected Total	46.597	55				

a. R Squared = .197 (Adjusted R Squared = .080)

Analyses relating to self-ratings

Tests of Within-Subjects Effects

Measure:Positive Affect

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	2.164	2	1.082	2.477	.089
	Greenhouse-Geisser	2.164	1.234	1.754	2.477	.114
Time * VAR00001	Sphericity Assumed	.516	2	.258	.590	.556
	Greenhouse-Geisser	.516	1.234	.418	.590	.479
Time * mood_condition	Sphericity Assumed	7.720	2	3.860	8.834	.000
	Greenhouse-Geisser	7.720	1.234	6.256	8.834	.002
Time * Group	Sphericity Assumed	.071	2	.036	.082	.922
	Greenhouse-Geisser	.071	1.234	.058	.082	.828
Time * VAR00001 * mood_condition	Sphericity Assumed	1.721	2	.861	1.970	.145
	Greenhouse-Geisser	1.721	1.234	1.395	1.970	.163
Time * VAR00001 * Group	Sphericity Assumed	2.178	2	1.089	2.493	.088
	Greenhouse-Geisser	2.178	1.234	1.765	2.493	.113
Time * mood_condition * Group	Sphericity Assumed	.799	2	.400	.915	.404
	Greenhouse-Geisser	.799	1.234	.648	.915	.363
Time * VAR00001 * mood_condition * Group	Sphericity Assumed	2.097	2	1.049	2.400	.096
	Greenhouse-Geisser	2.097	1.234	1.700	2.400	.121
Error(Time)	Sphericity Assumed	41.945	96	.437		
	Greenhouse-Geisser	41.945	59.229	.708		

Tests of Within-Subjects Effects

Measure:Positive Affect

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Level 1 vs. Level 2	.857	1	.857	.667	.418
	Level 2 vs. Level 3	1.325	1	1.325	6.972	.011
Time * VAR00001	Level 1 vs. Level 2	.948	1	.948	.738	.395
	Level 2 vs. Level 3	.056	1	.056	.297	.589
Time * mood_condition	Level 1 vs. Level 2	14.401	1	14.401	11.206	.002
	Level 2 vs. Level 3	1.030	1	1.030	5.421	.024
Time * Group	Level 1 vs. Level 2	.001	1	.001	.001	.974
	Level 2 vs. Level 3	.094	1	.094	.496	.485
Time * VAR00001 * mood_condition	Level 1 vs. Level 2	1.585	1	1.585	1.233	.272
	Level 2 vs. Level 3	.304	1	.304	1.599	.212
Time * VAR00001 * Group	Level 1 vs. Level 2	2.160	1	2.160	1.681	.201
	Level 2 vs. Level 3	.301	1	.301	1.583	.214
Time * mood_condition * Group	Level 1 vs. Level 2	1.594	1	1.594	1.240	.271
	Level 2 vs. Level 3	.326	1	.326	1.714	.197
Time * VAR00001 * mood_condition * Group	Level 1 vs. Level 2	2.606	1	2.606	2.028	.161
	Level 2 vs. Level 3	.081	1	.081	.426	.517
Error(Time)	Level 1 vs. Level 2	61.688	48	1.285		
	Level 2 vs. Level 3	9.120	48	.190		

Measure:Negative Affect

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	2.040	2	1.020	2.826	.064
	Greenhouse-Geisser	2.040	1.259	1.620	2.826	.089
Time * VAR00001	Sphericity Assumed	.631	2	.316	.874	.420
	Greenhouse-Geisser	.631	1.259	.501	.874	.377
Time * mood_condition	Sphericity Assumed	1.348	2	.674	1.868	.160
	Greenhouse-Geisser	1.348	1.259	1.071	1.868	.175
Time * Group	Sphericity Assumed	.006	2	.003	.008	.992
	Greenhouse-Geisser	.006	1.259	.005	.008	.959
Time * VAR00001 * mood_condition	Sphericity Assumed	.661	2	.330	.915	.404
	Greenhouse-Geisser	.661	1.259	.525	.915	.365
Time * VAR00001 * Group	Sphericity Assumed	.665	2	.333	.921	.401
	Greenhouse-Geisser	.665	1.259	.528	.921	.363
Time * mood_condition * Group	Sphericity Assumed	.249	2	.125	.345	.709
	Greenhouse-Geisser	.249	1.259	.198	.345	.609
Time * VAR00001 * mood_condition * Group	Sphericity Assumed	2.204	2	1.102	3.053	.052
	Greenhouse-Geisser	2.204	1.259	1.751	3.053	.076
Error(Time)	Sphericity Assumed	34.650	96	.361		
	Greenhouse-Geisser	34.650	60.430	.573		

Tests of Within-Subjects Contrasts

Measure:Negative Affect

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Level 1 vs. Level 2	1.078	1	1.078	1.253	.269
	Level 2 vs. Level 3	.962	1	.962	5.115	.028
Time * VAR00001	Level 1 vs. Level 2	1.056	1	1.056	1.226	.274
	Level 2 vs. Level 3	.014	1	.014	.076	.783
Time * mood_condition	Level 1 vs. Level 2	2.684	1	2.684	3.119	.084
	Level 2 vs. Level 3	.520	1	.520	2.766	.103
Time * Group	Level 1 vs. Level 2	.003	1	.003	.004	.953
	Level 2 vs. Level 3	.012	1	.012	.065	.801
Time * VAR00001 * mood_condition	Level 1 vs. Level 2	.505	1	.505	.587	.447
	Level 2 vs. Level 3	.182	1	.182	.968	.330
Time * VAR00001 * Group	Level 1 vs. Level 2	1.309	1	1.309	1.521	.224
	Level 2 vs. Level 3	.198	1	.198	1.051	.310
Time * mood_condition * Group	Level 1 vs. Level 2	.474	1	.474	.551	.462
	Level 2 vs. Level 3	.230	1	.230	1.224	.274
Time * VAR00001 * mood_condition * Group	Level 1 vs. Level 2	1.347	1	1.347	1.565	.217
	Level 2 vs. Level 3	.874	1	.874	4.645	.036
Error(Time)	Level 1 vs. Level 2	41.311	48	.861		
	Level 2 vs. Level 3	9.032	48	.188		

Tests of Within-Subjects Effects

Measure:SHPS

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	44.601	2	22.300	1.415	.248
	Greenhouse-Geisser	44.601	1.163	38.335	1.415	.244
Time * VAR00001	Sphericity Assumed	24.603	2	12.301	.780	.461
	Greenhouse-Geisser	24.603	1.163	21.146	.780	.399
Time * mood_condition	Sphericity Assumed	172.978	2	86.489	5.487	.006
	Greenhouse-Geisser	172.978	1.163	148.675	5.487	.018
Time * Group	Sphericity Assumed	5.627	2	2.813	.178	.837
	Greenhouse-Geisser	5.627	1.163	4.836	.178	.712
Time * VAR00001 * mood_condition	Sphericity Assumed	11.735	2	5.868	.372	.690
	Greenhouse-Geisser	11.735	1.163	10.087	.372	.576
Time * VAR00001 * Group	Sphericity Assumed	38.614	2	19.307	1.225	.298
	Greenhouse-Geisser	38.614	1.163	33.189	1.225	.281
Time * mood_condition * Group	Sphericity Assumed	78.041	2	39.020	2.476	.089
	Greenhouse-Geisser	78.041	1.163	67.077	2.476	.117
Time * VAR00001 * mood_condition *	Sphericity Assumed	104.798	2	52.399	3.324	.040
	Greenhouse-Geisser	104.798	1.163	90.074	3.324	.068

Group						
Error(Time)	Sphericity Assumed	1513.153	96	15.762		
	Greenhouse-Geisser	1513.153	55.846	27.095		

Tests of Within-Subjects Contrasts

Measure:SHPS

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Level 1 vs. Level 2	20.173	1	20.173	.463	.500
	Level 2 vs. Level 3	24.498	1	24.498	5.067	.029
Time * VAR00001	Level 1 vs. Level 2	18.321	1	18.321	.420	.520
	Level 2 vs. Level 3	7.143	1	7.143	1.477	.230
Time * mood_condition	Level 1 vs. Level 2	321.914	1	321.914	7.387	.009
	Level 2 vs. Level 3	22.322	1	22.322	4.617	.037
Time * Group	Level 1 vs. Level 2	2.689	1	2.689	.062	.805
	Level 2 vs. Level 3	2.940	1	2.940	.608	.439
Time * VAR00001 * mood_condition	Level 1 vs. Level 2	9.560	1	9.560	.219	.642
	Level 2 vs. Level 3	2.836	1	2.836	.587	.447
Time * VAR00001 * Group	Level 1 vs. Level 2	63.709	1	63.709	1.462	.233
	Level 2 vs. Level 3	.651	1	.651	.135	.715
Time * mood_condition * Group	Level 1 vs. Level 2	86.091	1	86.091	1.976	.166
	Level 2 vs. Level 3	6.791	1	6.791	1.405	.242
Time * VAR00001 * mood_condition * Group	Level 1 vs. Level 2	151.007	1	151.007	3.465	.069
	Level 2 vs. Level 3	.235	1	.235	.049	.827
Error(Time)	Level 1 vs. Level 2	2091.741	48	43.578		
	Level 2 vs. Level 3	232.080	48	4.835		

Tests of Within-Subjects Effects

Measure: Vividness

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	.260	2	.130	.496	.611
	Greenhouse-Geisser	.260	1.463	.178	.496	.553
Time * VAR00001	Sphericity Assumed	.565	2	.283	1.078	.344
	Greenhouse-Geisser	.565	1.463	.387	1.078	.328
Time * mood_condition	Sphericity Assumed	.076	2	.038	.145	.865
	Greenhouse-Geisser	.076	1.463	.052	.145	.798
Time * Group	Sphericity Assumed	.152	2	.076	.290	.749
	Greenhouse-Geisser	.152	1.463	.104	.290	.679
Time * VAR00001 * mood_condition	Sphericity Assumed	.100	2	.050	.190	.827
	Greenhouse-Geisser	.100	1.463	.068	.190	.757
Time * VAR00001 * Group	Sphericity Assumed	.094	2	.047	.179	.836
	Greenhouse-Geisser	.094	1.463	.064	.179	.767
Time * mood_condition * Group	Sphericity Assumed	.198	2	.099	.378	.686
	Greenhouse-Geisser	.198	1.463	.136	.378	.621
Time * VAR00001 * mood_condition * Group	Sphericity Assumed	1.344	2	.672	2.564	.082
	Greenhouse-Geisser	1.344	1.463	.919	2.564	.100
Error(Time)	Sphericity Assumed	25.168	96	.262		
	Greenhouse-Geisser	25.168	70.223	.358		

Tests of Within-Subjects Effects

Measure:Importance

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	1.519	2	.759	2.852	.063
	Greenhouse-Geisser	1.519	1.466	1.036	2.852	.080
Time * VAR00001	Sphericity Assumed	.917	2	.458	1.722	.184
	Greenhouse-Geisser	.917	1.466	.626	1.722	.193
Time * mood_condition	Sphericity Assumed	1.176	2	.588	2.208	.115
	Greenhouse-Geisser	1.176	1.466	.802	2.208	.131
Time * Group	Sphericity Assumed	.410	2	.205	.769	.466
	Greenhouse-Geisser	.410	1.466	.279	.769	.430
Time * VAR00001 * mood_condition	Sphericity Assumed	.074	2	.037	.139	.870
	Greenhouse-Geisser	.074	1.466	.051	.139	.804
Time * VAR00001 * Group	Sphericity Assumed	.567	2	.284	1.066	.349
	Greenhouse-Geisser	.567	1.466	.387	1.066	.332
Time * mood_condition * Group	Sphericity Assumed	.231	2	.115	.434	.649
	Greenhouse-Geisser	.231	1.466	.158	.434	.588
Time * VAR00001 * mood_condition * Group	Sphericity Assumed	.261	2	.131	.491	.614
	Greenhouse-Geisser	.261	1.466	.178	.491	.556
Error(Time)	Sphericity Assumed	25.556	96	.266		
	Greenhouse-Geisser	25.556	70.350	.363		

Tests of Within-Subjects Contrasts

Measure:Importance

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Level 1 vs. Level 2	2.702	1	2.702	3.748	.059
	Level 2 vs. Level 3	.103	1	.103	.484	.490
Time * VAR00001	Level 1 vs. Level 2	1.575	1	1.575	2.185	.146
	Level 2 vs. Level 3	.035	1	.035	.165	.686
Time * mood_condition	Level 1 vs. Level 2	1.747	1	1.747	2.423	.126
	Level 2 vs. Level 3	.000	1	.000	.001	.978
Time * Group	Level 1 vs. Level 2	.604	1	.604	.838	.364
	Level 2 vs. Level 3	.000	1	.000	.001	.978
Time * VAR00001 * mood_condition	Level 1 vs. Level 2	.143	1	.143	.198	.658
	Level 2 vs. Level 3	.065	1	.065	.304	.584
Time * VAR00001 * Group	Level 1 vs. Level 2	1.113	1	1.113	1.544	.220
	Level 2 vs. Level 3	.428	1	.428	2.011	.163
Time * mood_condition * Group	Level 1 vs. Level 2	.045	1	.045	.062	.805
	Level 2 vs. Level 3	.206	1	.206	.969	.330
Time * VAR00001 * mood_condition * Group	Level 1 vs. Level 2	.097	1	.097	.134	.716
	Level 2 vs. Level 3	.519	1	.519	2.442	.125
Error(Time)	Level 1 vs. Level 2	34.606	48	.721		
	Level 2 vs. Level 3	10.206	48	.213		